

Assessment of Subsidies for Construction Businesses in Nigeria: Evolution from an Oil-Based Economy to an Infrastructural-Based Economy

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Abstract

Subsidies are financial or non-financial aids or support given to an economic sector, individual or organization by their government to promote the economy and achieve specific policy objectives. This study assessed the use of subsidies for construction businesses in Nigeria with a view to revolutionize the country from oil-based economy to infrastructural-based economy. A structured questionnaire was administered to four hundred and four (404) construction business stakeholders, and three hundred and four (304) representing 75.25% were retrieved from the respondents. Findings revealed that buying and selling of construction materials with Mean Score (MS) of 3.97 is the most successful construction businesses in Nigeria. The major factors considered in rating construction business performance are profitability to the investor (MS=3.70), resource management and control (MS=3.68), and cost performance (MS=3.63). The study concluded that the establishment of construction related institutions (MS=3.97), enforcement of health, safety, and hazards prevention policies (MS=3.91), exchange rate moderation for construction business (MS=3.86), and implementation of the National Building Code (NBC) (MS=3.85) will grow the infrastructural economy. The study recommended subsidies for construction businesses in Nigeria to boost the infrastructural sectors and the economy.

1. Introduction

Construction business is an industrial activity relating to the building, repairing, renovating and maintenance of infrastructure (Selyutina, 2018). As a major component of the economy, the construction business is essential to the social, political, and economic advancement of any country. (George, 2015). It is a product-based sector determined by the particulars of every project and the participation of different stakeholders during the course of the project life cycle (Shabir & Tauha, 2014). Construction business players such as clients, contractors and artisans take a lot of risks by investing huge capital to execute projects. Construction business actors invested a lot of capital in material production, importation and exportation of materials, purchasing of plants and equipment, consultancy services, training, and in research to improve on existing materials and methods. Also, with advancement in technology and the introduction of Building Information Modelling (BIM), Artificial Intelligence (AI), green building and robotic construction, indigenous construction players will find it very difficult

to compete with foreign firms which will result in decline of Nigeria forest. Also, the quest for flexible designs and advancement in technology have also increases the taste of client which is negatively affecting Nigeria foreign exchange.

The government of Nigeria invested seventy percent (70%) of its capital budget on construction projects (Mangywat *et al.*, 2020). This has put pressure on the industry to deliver on its mandate to improve the infrastructural deficit in Nigeria or continue to face decline in the value of its currency. This mandate comes with a lot of risk and can only be achieved if the Federal government of Nigeria will assist construction project players by subsidizing construction business. A subsidy is referred to as a form of financial aid or support extended to an economic sector or individual, typically by the government, to promote economic activities or achieve specific policy objectives (Ewers *et al.*, 2011). The subsidy can be invested in material and methods, human resources development or in the regulation of enabling laws that will improve the practice of construction businesses. Subsidies can take various forms, such as direct or indirect financial aids, discounted services or tax breaks, and are often used to encourage the production or consumption of goods and services that are deemed to be in the public interest (Garn *et al.*, 2017). In the context of construction businesses, subsidies can be referred to as any assistance giving to construction industry by the government to reduce construction costs, which is crucial for maintaining productivity and diversity of its products and services (Buckner *et al.*, 2017). These assistances will reduce cost overrun, time overrun, project abandonment and building collapse in the construction industry (Adedeji & Ajayi, 2022; Ijigah *et al.*, 2023).

Furthermore, allocation of subsidies has produced significant impact on various sectors, such as agriculture, energy, climate (Pfister *et al.*, 2014), petroleum, health (Garn *et al.*, 2017), housing, education and the transportation sector (Ewers *et al.*, 2011). The construction sector has not been subsidized in any form by the government of Nigeria. Saudi-Arabian and Dubai who were oil-based nations have been revolutionize to an infrastructural-bases economy by boasting their construction business. (Samargandi *et al.* 2014; Nurunnabi, 2017; Ababsa, 2024). These research terms to guide the Nigeria government on steps that will grow the non-oil sector of the economy, especially the construction sub-sector after the removal of fuel subsidy. Construction business are large industries globally and they contribute one-tenth to the global gross domestic product, and seven per cent (7%) to the total employment (Rose & Rose, 2024; Ababsa, 2024). Its activities like real estate, land, and construction sector represent seventy per cent of global wealth (United Nation Global Compact [UNGC], 2008; Medhat, 2024). Bureau of labour statistics (2013) buttressed this point by stating that the construction business employed over five million workers despite the 2012 economic downturn in the United States (Ofori, 2024). In Nigeria the industry represents sixty per cent (60%) of the capital investment and contributes more than four billion Naira to the nation's Gross Domestic Product GDP (Aje *et al.*, 2009; Uwandu, 2017). The construction industry has historically performed prominent economic roles, social roles and developmental roles in many nations (David *et al.*, 2014). Whatever happens to construction business sub-sector will have an impact on other infrastructural industries, which will in turn have an impact on national (GDP) of the country (David *et al.*, 2014). The success of construction business in Nigeria, largely depends on the integration of subsidies in the process of construction. Mass construction projects require large amount of funds for timely delivery (Biolek & Hanak, 2024). In spite of this, access to subsidies for construction businesses in Nigeria still needs improvement. This is because the mechanisms have not been put in place for construction project players to obtain subsidies for construction projects.

Additionally, the demand for concrete is predicted to surge due to rapid construction developments, highlighting the need for substantial support in this area (Amran *et al.*, 2021). Additionally, the review of pollution in African countries underscores the importance of managing environmental impacts on construction processes, which could be supported through targeted subsidies for sustainable practices (Aragaw, 2021). The construction industry in Nigeria is experiencing rapid growth, necessitating the implementation of sustainable technologies and materials. Subsidies play a crucial role in supporting the adoption of sustainable practices, such as carbon capture and storage, eco-efficient concretes, and wood building materials, and new innovations to mitigate environmental effects of construction activities and promote the long-term sustainability of construction projects. An economy encompasses all of the activities related to the production, consumption, and trade of goods and services within an entity (Ilyash *et al.*, 2012). An oil economy is one in which a substantial amount of the GDP is derived from oil income (Raza & Lin, 2021). The United States, Saudi Arabia, Russia, Canada, Nigeria, and the other Organization of the Petroleum Exporting Countries (OPEC) are nations with oil economies (Candila *et al.*, 2021). Nigeria's economy is mostly dependent on the oil and gas industry, which generates 50% of the country's government spending and more than 80% of its overall revenue (Ilori & Efuntade, 2020). Infrastructures are fundamental, necessary services that should be established in order to drive development.

The terms "infrastructural economy" refers to those that offer internal resources that will facilitate company operations, such as distribution networks, energy, international markets, communication, and reputable financial institutions (Muehlebach, 2023). Several OPEC countries, like the United States, Canada, and Russia, have developed their economies from an oil-based economy to an infrastructure-based economy (Candila *et al.*, 2021). These have reduced the cost of doing business, encouraged specialization, and promoted the production and

consumption of goods and services in their countries. Additionally, Keynesian economic theory pushes governments everywhere to provide the infrastructure required for their nations to boost economic progress and decrease poverty (Fazzari, 2020). Nigeria is yet to develop its infrastructural economy from the oil economy. However, the creation of infrastructure—which includes roads, railroads, airports, housing, and jobs—contributes greatly to the growth and prosperity of many nations. This study assessed the effect of the allocation of subsidies for construction businesses in Nigeria on improving infrastructure and the economy.

2. Literature Review

The removal of petroleum subsidies in Nigeria has been a topic of significant interest and concern. The impact of such removal can have far-reaching consequences, particularly in the context of environmental and economic factors. The removal of subsidies can lead to a decline in the availability of essential resources, such as housing, public building facilities, road and other services (Garn et al., 2017). Hepburn *et al.* (2019) discussed the economic, technological and economic advantages of CO₂ utilization and removal, emphasizing the profitability of pathways that involve subsidies for CO₂ removal from the atmosphere. Okedere *et al.* (2021) highlight the environmental impact of anthropogenic air emissions in Nigeria, indicating that the removal of subsidies may lead to an increase in air pollutants, posing significant environmental challenges. The potential consequences of subsidy removal are not limited to environmental and economic aspects. Alamgir *et al.* (2017) discuss the risks associated with road development in the tropics, emphasizing the environmental and socio-political implications of subsidy removal. This is particularly relevant in the context of Nigeria, where infrastructure development and associated subsidies can have wide-ranging effects on natural habitats and local communities. Construction materials and the changes in the economy of developing countries require that certain areas in the construction business need subsidies (Li *et al.*, 2023). However, these areas are usually ignored in the construction industry. There is need to train construction professionals with the use of subsidies. This will eventually reduce the costs of construction.

On May 29, 2023, the Nigeria government announce the removal of petroleum subsidies and other related subsidies for health, education, agriculture, security, electricity, foreign exchange (Meludu *et al.*, 2024). The impact of such removal had far-reaching consequences, particularly in the context of environment and economy. The removal of subsidies can lead to a decline in the availability of essential resources, such as housing, public building facilities, road and other services (Garn et al., 2017). To address the issue of subsidies for construction projects in Nigeria, it is essential to consider the significant growth of construction business in the country (Amran et al., 2021). This growth necessitates the development of new technologies and applications such as, Building Information Modelling (BIM) applications and adoptions, Artificial Intelligence (AI), green building, and robotic construction. All these innovations require significant number of subsidies and prolonged durations for successful implementation (Haszeldine *et al.*, 2018). Adams Smith, David Ricardo, Alfred Marshall, and Vilfredo Pareto suggested neoclassical, Keynesian, and Marxian economic theories to boost economic development (Thomas, 2020). The current research study examines the application of neoclassical economic theories by the Nigerian government when subsidies on oil were removed and the recommendation of Keynesian economic theories to boost construction and economic infrastructure in Nigeria.

Neoclassical economics is a broad economic theory that focuses on a free market system (Fix, 2022). The theory focuses on supply and demand as the driving forces behind production, pricing, and consumption of goods and services produced by labour, capital, and technology as fixed factors of production in a given state (Neck, 2022). The theory encourages methodological individualism, equilibrium, turning away from religion affliction, and the development of price policies. (Foster, 2020). When subsidies were removed on fuel, education, electricity, and exchange rates in Nigeria on May 29, 2023 (Sambo & Sule, 2023), labour costs were not regulated, price mechanisms were not fixed, and advanced technologies to fix the economy were not developed. This makes the Neoclassical economic theory applied by the Nigerian government to fail, leading to high cost of goods, hyperinflation, and uncontrolled exchange rates. On the other hand, the Keynesian economic models hold that prices are only partially fixed and that changes in any of the economic variables, such as expenditure, consumption, and investment, will result in changes in outputs (Papageorgiou & Michaelides, 2021). The theory encourages the government to increase spending on components of the economy to boost employment and reduce inflation. The Keynesian theoretical model is of the opinion that if government spending increases on a particular product or commodity and all other things are equal, the country's economy will improve. The more a government improves its expenditure on infrastructural projects, the more the economy of such a country improves. These studies investigate spending on construction businesses as a means to boost infrastructure and the economy of Nigeria.

3. Materials and Methods

The study adopted the survey research design using a structural questionnaire distributed to construction business stakeholders. The respondents. the Respondents to this research were Clients, Contractors and Consultants (Project managers, Architects, Engineers, Quantity Surveyors and Builders) executing private and

public construction businesses in Nigeria. Also, the manufacturers and sellers of building materials, building regulatory bodies, government regulatory bodies, Standard Organization of Nigeria (SON), building artisans, academicians, and research institutions will form part of the respondents. The identified participants/stakeholders are directly and indirectly involved in the execution of construction businesses in Nigeria. Four hundred and four (404) structured questionnaires were distributed while three hundred and four (304) was retrieved representing seventy-five per cent (75%).

Table 1 Sample frame and size

S/No	Respondent	No./ State	No. of States	Total	Simple size
1	Clients	5	37	185	28
2	Contractors	5	37	185	28
3	Consultants				
	Architects	5	37	185	28
	Builders	5	37	185	28
	Engineers	5	37	185	28
	Project managers	5	37	185	28
	Quantity Surveyors	5	37	185	28
4	Manufactures of building materials [MBM]	5	37	185	28
5	Sellers of building materials [SBM]	5	37	185	28
6	Building regulatory bodies [BRB]	5	37	185	28
7	Government regulatory bodies [GRB]	1	37	37	6
8	Standard organization of Nigeria (SON)	1	37	37	6
9	Artisans	5	37	185	28
10	Academicians	10	37	370	56
11	Research institutions	5	37	185	28
	Total	72	37	2664	404

The sample size for the research was derived from the sampling frame using convenient sampling technique (Arijeloye *et al.*, 2024) on available stakeholders and Gohari *et al.* (2024) unlimited population formula.

$$n = \frac{N}{1+N(e)^2} \text{ (Yamane, 1967)} \tag{Equation 1}$$

where

N = sample population (2664) and e= 5% level of significant (0.05) at 95% confidence level

$$\text{Therefore (n)} = \frac{2664}{1+ 2664(0.05)^2}$$

$$\text{Sample size (n)=} \frac{2664}{1+ 6.66}$$

$$\text{Sample size (n)=} 347.78 = 348$$

Using the unlimited population formula shall be used as given by Gohari *et al.* (2024)

$$n = \frac{z^2 \cdot p(1-p)}{e^2} \text{ (Kothari, 2004)} \tag{Equation 2}$$

Where

z= the Z score, n= Population size, e= level of significance at 5% is also the error margin, P= the population proportion. Assume population proportion (p) to be 0.5, e=5%= 0.05, Take the z value of 1.96 for confidence level at 95% from cumulative normal probability table

Using the equation 2

$$n = \frac{(1.96)^2 \cdot 0.5(1-0.5)}{(0.05)^2}$$

n= 384.16

The result of the convenient sampling technique by Arijeloye *et al.* (2024) is **328** while that of Gohari *et al.* (2024) unlimited population formula is **384**. For this study, a sample size of **404** respondents was used. The proportional sampling size was calculated using the following method adopted from (Amare, 2015).

$$n_i = \frac{n \cdot N_i}{N} = \frac{\text{Number of respondent} \cdot \text{Total population}}{\text{Total Sample Size}} \quad \text{Equation 3}$$

4. Results and Discussions

Table 2 shows that 35.5% of the respondents are between the age of 20-29 years, 34.2% are 30-39 years, 26.3% 40-49 years while 3.9% are between the age of 50 and above. From the table, 67.1% of the respondents are males and 32.9% of the respondents are females. 3.9% possesses National Diploma and National Certificate in Education (ND/NCE), 13.2% possesses Higher National Diploma (HND), 1.3% have Post Graduate Diploma (PGD), 42.1% have acquired Bachelor of Technology and Bachelor of Science B. Tech/B.Sc while 39.5% possess Master's of Science (M.Sc) and doctor of philosophy (Ph.D) M.SC/Ph.D. The Table indicates that 31.6% represent those that have less than 5 years' experience, 65.8% of the respondents have (6-10) years of working experience and 2.6% have (11-15) years of working experience. 7.24% of the respondents are clients, 7.57% are contractors, 35.85 % are consultants, 5.26% are Manufactures of Building Materials [MBM], 6.91% are Sellers of Building Materials [SBM], 6.58% Building Regulatory Bodies [BRB], 1.64% are Government Regulatory Bodies [GRB], 1.97 represent Standard Organization of Nigeria (SON), 6.58% are artisans, 14.47% are academicians and 5.92% are research institutions workers. 98.7% of the respondents are involvement in construction business while only 1.3% are not involved in construction related businesses.

Table 2 Demographic information of the respondents

Demographic Characteristics	Characteristics	Frequency	Percentage %	Total
Age of respondent	20-29	108	35.5	304
	30-39	104	34.2	
	40-49	80	26.3	
	50 and above	12	3.9	
Gender	Male	204	67.1	304
	Female	100	32.9	
Educational qualification	ND/NCE	12	3.9	304
	HND	40	13.2	
	PGD	4	1.3	
	B.Tech/B.sc	128	42.1	
Year of experience	M.SC/Ph.D.	120	39.5	304
	1-5 years	200	31.6	
	6-10 years	96	65.8	
Group of Respondents	11-15 years	8	2.6	304
	Clients	22	7.24	
	Contractors	23	7.57	
	Consultants			
	Architects	20	6.58	
	Builders	23	7.57	
	Engineers	25	8.22	
	Project managers	17	5.59	
	Q.S	24	7.89	
	MBM	16	5.26	
	SBM	21	6.91	
	BRB	20	6.58	
	GRB	5	1.64	
	SON	6	1.97	
Involvement in construction business	Artisans	20	6.58	304
	Academicians	44	14.47	
	Research institutions	18	5.92	
	Yes	300	98.7	

No

4

1.3

304

The mean values that evolved are as follows: mean value of ≥ 4.50 represents "Extreme Success (ES)", 3.50-4.49 represents "High Success (HS)", 2.50 -3.49 represents "Average Success (AS)", 1.50-2.49 represents "Little success (LS)" and 1.00-1.49 represents "No Success (NS)". Data collected were analysed based on the responses of the participants, and for each item listed the mean value and standard deviation for each item were ranked to identify the most successful construction businesses. The value of kurtosis and skewness are shown in Table 3. Sharipova (2024) and Loperfido (2024) suggests that data are considered to be in excellent form when the skewness range is fewer than 2 and kurtosis fewer than 7, since the skewness and kurtosis values of the data collected based on the assessment of subsidies for construction businesses in Nigeria. From Table 3, the skewness and kurtosis values are less than two (2) and seven (7), respectively, therefore the data is accurate. From table 3, the most successful construction businesses were determined by ranking the mean value and standard deviation of each item on the list after the data was examined based on participant responses. According to Table 3, the most successful construction businesses was buying and selling of construction materials with a Mean Statistics (MS) value of 3.97 and a Standard Deviation (SD) of 0.78. The study implies that buying and selling of construction materials is the most lucrative construction business in Nigeria. buying and selling construction businesses in Nigeria involves little risk as most of the materials used for construction of buildings are not perishable and can easily be transported from one location to another. Building materials in Nigeria include tiles, cements, blocks, paints, ceiling materials, reinforcements bars, woods and fittings. Also, the cost of logistics is added to the final price and consumers mostly bears that cost in Nigeria. Buying and selling process can help construction teams ensure they have the right materials at hand and at the right time which will reduce delays of construction activities and other issues that can arise when they are shortage of materials (Minde *et al.*, 2024). The view of buying and selling of construction materials as the best construction related businesses was also shared by Hussien and Adewumi (2024); Weldegiorgis *et al.* (2024). The two research find out that the use of Artificial Intelligence (AI) and online buying and selling of building construction materials is the most successful business in Australia and Brazil. The work also supported a study by Akani (2024) that buying and selling of construction material is highly profitable in Nigeria.

The second major successful construction business is engagement of tradesmen / skilled workers (MS=3.75; SD=0.96). There is usually shortage of skilled workers in Nigeria (Habu & Oni, 2024). These shortages have created a demand pool and have makes the service provided by skilled workers to be needed by all construction stakeholders. Training and retraining of skilled workers are needed in Nigeria to avoid mistakes and wastage of construction materials (Varvar & Ishaku, 2024). This will enhance the productivity of the workers, reduce the cost spent on construction, and enhance infrastructural development in the country. The third major successful construction business is the engagement of unskilled worker (MS=3.70; SD=0.99). There is high rate of unemployment in Nigeria as total unemployment in 2023 stood at 33.5% and youth unemployment is 42.5% (Nigeria Bureaus of Statistics, [NBS], 2023). As a result, most of these unrelenting humans engaged in any menial job available in the construction industry to feed their family and loved ones (Huruta, 2024). They came to construction businesses due to the condition they found themselves in Nigeria and they rate their successes based on availability of work or expected work using the expectancy theory approach (Onuora *et al.*, 2024). Most of their job are physically carried out in Nigeria and strength- oriented. These set of workers can be trained to increase productivity and efficiency of construction projects. The fourth successful construction business are manufacturers of construction materials (MS=3.68; SD=0.73). Manufacturers of construction materials in Nigeria are successful because most of them run a monolithic economy. They habitually fix prices on their manufactured materials and force the masses to buy as they often have no other alternative. These materials include cement, tiles, gravels, sands, blocks, woods, and reinforcement. Recently in Nigeria, there was a 100% increase in the price of cement (Meludu *et al.*, 2024). This increment will increase the cost of construction and many projects will fail or be abandoned. Hiring and leasing of construction equipment is another construction business that records high success and ranked fifth among the listed factors (MS= 3.67; SD = 0.77). The least business in the group is construction software development (MS=3.32; SD=0.95) which have not received much attention in Nigeria due to poor technological advancement and other factors. All the listed factors are significant (0.000) at Sig. (2-tailed) and the calculated table value (t) ranges from (t= 51.85) been the lowest to (t= 88.96) been the highest.

The mean scores that evolved are as follows: mean value of ≥ 4.50 represents "Very High Level (VHL)", 3.50-4.49 represents "High Level (HL)", 2.50 -3.49 represents "Average Level (AL)", 1.50-2.49 represents "Low Level (LL)" and 1.00-1.49 represents "Very Low Level (VLL)". From Table 3, the skewness and kurtosis values of the data collected based on the level of performances of construction business in terms of service provided in Nigeria are less than two (2) and seven (7), respectively, therefore the data is accurate. The highest level of performances of construction business in Nigeria was profitability to the investor or client with a Mean Score (MS) of 3.70 and a Standard Deviation (SD) of 0.96. Every business owner is interested in profit for the capital invested and this is not different in the construction industry. According to El-Hazek *et al.* (2024) construction client, and contractor in Nigeria are trying their best to achieve profitability in construction projects in Nigeria through estimation

quality and information of the project in the bidding stage. But only construction projects executed with reference to specific customer or user in mind enhances successful delivery and are usually profitable to the clients (Arijeloye *et al.*, 2024). Application of subsidy for construction businesses will enhance the performance of the industry with accurate estimation quality, information of the project and user in mind during the design and construction stages. The second level of performances of construction business in Nigeria is Resource management and control (MS=3.68; SD=0.85). Resource management, control, and project governance influences the distribution of financial, human, and material resources in complex projects via regulating, managing, shaping, and influencing their usage (Tijani *et al.*, 2024). To achieve smart cities, construction professionals within Nigeria should encourage resource management (Bello *et al.*, 2024).

Table 3 Assessment of most successful construction businesses in Nigeria

Construction Businesses	df	M.S	S.D	S	K	t	Sig. (2-tailed)	Remark
Buying and selling of construction materials	303	3.97	0.78	-0.12	-0.93	88.96	0.00	HS
Engagement of tradesmen/ skilled workers	303	3.75	0.96	-0.29	-0.88	67.90	0.00	HS
Engagement of unskilled worker	303	3.70	0.99	-0.19	-1.01	65.21	0.00	HS
Manufacturing of construction materials	303	3.68	0.73	0.57	-0.94	87.94	0.00	HS
Hiring and leasing of construction equipment	303	3.67	0.77	-0.41	-0.08	83.25	0.00	HS
Importation and exportation of construction materials	303	3.57	1.06	-0.29	0.41	58.81	0.00	HS
Client (individual, cooperate, government or PPP)	303	3.57	0.94	-0.48	0.08	66.27	0.00	HS
Construction service providers like (borehole drilling)	303	3.57	0.80	-0.14	-0.41	77.56	0.00	HS
Sub-contractors' services	303	3.53	1.12	-0.29	-0.93	54.92	0.00	HS
Design and construction services providers	303	3.49	0.91	-0.17	-0.34	66.67	0.00	AS
Construction design	303	3.47	0.93	0.23	-0.82	65.41	0.00	AS
Rentals and users of construction products	303	3.47	1.01	-0.28	-0.80	60.09	0.00	AS
Construction software developers	303	3.46	0.91	-0.20	-0.37	66.22	0.00	AS
Construction site management	303	3.45	0.99	-0.18	-0.75	60.49	0.00	AS
Construction cost estimators	303	3.39	0.96	-0.41	-0.04	61.50	0.00	AS
Specialist contracting	303	3.34	1.01	-0.49	-0.13	57.76	0.00	AS
Construction researchers	303	3.34	1.00	0.13	-0.78	58.52	0.00	AS
Trainers of construction trades men	303	3.33	1.06	-0.23	-0.39	54.87	0.00	AS
Standard organizations of Nigeria	303	3.33	1.01	0.05	-1.02	57.65	0.00	AS
Construction related professionals	303	3.32	0.89	0.12	-0.26	64.73	0.00	AS
Regulatory bodies	303	3.32	1.06	-0.05	-1.10	54.76	0.00	AS
Free lancing service providers	303	3.30	1.04	-0.35	-0.19	55.33	0.00	AS
Monitors of construction bye laws	303	3.25	0.96	0.11	-0.32	58.84	0.00	AS
Consultancy services	303	3.24	1.09	-0.11	-0.71	51.85	0.00	AS
Insurance and risk management organizations	303	3.21	1.04	0.13	-1.06	53.60	0.00	AS
Construction software developer	303	3.20	0.95	0.25	-0.52	58.82	0.00	AS

Note; df= degree of freedom, M.S = Mean Scores, SD= Standard Deviation, S= skewness; K = kurtosis, t = calculated t,

Also, Bello and Ayegba (2024) said that the adoption of Building Information Modelling (BIM) for design, construction, and post-construction has enhanced resource management in the construction industry. The third level of performances of construction business in Nigeria is cost performance (MS=3.63; SD=0.96). Effective cost management is pertinent to the overall performance of construction projects. Poor cost performance on construction projects often offsets the clients and investors and leads to project abandonment. Teamwork and the use of BIM enhances the cost performance of construction projects globally and this should be encouraged in Nigeria (Ndekile *et al.*, 2024). It is therefore of great importance that all the construction stakeholders monitor cost of projects to enhance performance in the industry. Time performance

was ranked fourth (MS= 3.54; S.D. = 0.88), while adequate conflict management mechanisms (MS= 3.51; SD = 0.87) ranked fifth among the level of performances of construction business in Nigeria. The least is health and safety management (MS=3.34; SD=0.93) which have not received much attention in Nigeria. All the listed factors are significant (0.000) at Sig. (2-tailed) and the calculated table value (t) ranges from (t= 61.99) been the lowest to (t= 75.79) been the highest.

Table 3 Assessment of level of performances of construction business in Nigeria

Level of Performances of Construction Businesses	df	M.S	SD	S	K	t	Sig. (2-tailed)	Remark
Profitability to the investor or client	303	3.70	0.96	-0.35	-0.42	67.04	0.00	HL
Resource management and control	303	3.68	0.85	-0.13	-0.60	75.79	0.00	HL
Cost performance	303	3.63	0.96	-0.29	-0.84	66.02	0.00	HL
Time performance	303	3.54	0.88	-0.24	-0.67	70.00	0.00	HL
Adequate conflict management mechanisms	303	3.51	0.87	-0.22	-0.64	70.62	0.00	HL
Meeting clients' needs	303	3.47	0.97	-0.10	-0.98	62.58	0.00	AL
Environmental sustainability	303	3.43	0.97	0.01	-0.97	61.99	0.00	AL
Quality performance and meeting standard	303	3.41	0.94	-0.02	-0.49	63.49	0.00	AL
Health and safety management	303	3.34	0.93	0.17	-0.82	62.86	0.00	AL

Note: df= degree of freedom, MS = Mean Score, SD= Standard Deviation, S= skewness; K = kurtosis, t = calculated t,

The mean values that evolved are as follows: mean value of ≥ 4.50 represents "Extremely Important (EI)", 3.50-4.49 represents "Highly Important (HI)", 2.50 -3.49 represents "Averagely Important (AI)", 1.50-2.49 represents "Less Importance (LI)" and 1.00-1.49 represents "Very Low Level (VLL)". From Table 4, the skewness and kurtosis values of the data collected based on the area subsidy are required for construction business in Nigeria are less than two (2) and seven (7), respectively, therefore the data is accurate. From table 4, the most important area construction business subsidy is required in Nigeria is in the establishment of construction related institutions with a Mean Score (MS) of 3.97 and a Standard Deviation (SD) of 0.80. In Nigeria, several universities, polytechnics and mono technics have been established to boost some sectors. These includes the establishment of universities of agriculture, technology, petroleum, defence, and health sciences. They are no universities of construction in Nigeria to simulate the growth that comes with change in design, method of construction, advanced technologies, and sustainable construction processes that the country needs.

According to Faris *et al.* (2024), construction university establishment will form a pathway in understanding innovative processes for delivering construction projects throughout the project lifecycle stages. The second area of construction business where subsidy is required is in the enforcement of health and safety, hazards prevention policies in Nigeria (MS=3.91; SD=0.90). They have been neglecting in the implementation of health and safety practices due to governments policies on its implementation (Idehen *et al.*,2024; Solanki, *et al.*, 2024). Works on effective implementation of Internet of Things and cloud computing in the construction industry to control health and safety. However, the successful adoption and implementation of Smart Personal Protective Equipment (PPE) and construction safety standards have provided an enabling proactive risk mitigation and has foster a safer working environment for construction workers (Rasouli *et al.*,2024).

The third area of construction business where subsidy is required is in Exchange rate moderation (MS=3.86; SD=0.89). Exchange rate and foreign direct investment inflows have direct impact on the Nigeria GDP and the construction business (Nwogwugwu *et al.*, 2024). The fall in exchange rate in Nigeria was attributed to several factors which includes macroeconomic determinants, agricultural output, security, monetary policy, response to stock return volatility, trade openness, inflation, and oil price. Exchange rate moderation will simulate the non-oil economic sectors like Dubai and Saudi Arabian economy to bring recovery to the system. The fourth area where construction business subsidy is required is in enforcement of the National Building Code (NBC) to check professionalism in Nigeria (MS=3.85; SD=0.85). The Nigerian construction industry witness a lot of usurpers who and unchecked. These usurpers are not trained to carry out professional services, but they arbitrarily collect jobs that are met for profession to undermine the reputation of the industry. If the national building code is enforced, it will enhance professionalism in Nigeria. it will also have encouraged practicing professionals to go for training and re-training.

Monitor the implementation of permits and construction regulatory bodies in Nigeria was ranked fourth (MS= 3.84; SD = 0.85), while training of construction professionals (MS= 3.82; SD = 0.94) was ranked fifth among the

area subsidy are required for construction business in Nigeria. The least is Increase in infrastructural development and assess to construction sites (MS=3.33; SD=0.87) which have not received much attention in Nigeria. All the listed factors are significant (0.000) at Sig. (2-tailed) and the calculated table value (t) ranges from (t= 62.26) been the lowest to (t= 90.43) been the highest.

Table 4 Assessment of areas subsidies are required for construction business in Nigeria

Areas	df	MS	SD	S	K	t	Sig. (2-tailed)	Remark
Establishment of construction related institutions	303	3.97	0.80	-0.59	0.11	87.08	0.00	HI
Enforcement of health, safety, hazards prevention policies	295	3.91	0.90	-0.14	-1.15	74.28	0.00	HI
Exchange rate moderation	303	3.86	0.89	-0.52	-0.36	75.90	0.00	HI
Implementation of the national building code to check professionalism in Nigeria	295	3.85	0.85	-0.51	0.41	77.90	0.00	HI
Monitoring the implementation of developmental permits and construction regulatory bodies in Nigeria	299	3.84	0.85	-0.21	-0.70	78.20	0.00	HI
Training of construction professionals	303	3.82	0.94	-0.38	-0.75	70.52	0.00	HI
Promote innovations on the use of local content materials	303	3.79	0.78	-0.27	-0.29	84.21	0.00	HI
Importation of construction plants and equipment's.	303	3.78	0.94	-0.86	0.53	69.91	0.00	HI
Establishment of artisan's construction training institute	303	3.78	1.01	-0.30	-0.81	65.22	0.00	HI
Manufacturing of construction materials	303	3.78	0.77	-0.11	-0.47	85.24	0.00	HI
Promotion of green buildings	303	3.74	0.83	-0.16	-0.58	78.09	0.00	HI
Lunch satellites that will carry out environmental analysis	299	3.68	0.75	-0.16	-0.27	84.71	0.00	HI
Enhance cybersecurity	299	3.67	0.77	-0.40	-0.12	82.16	0.00	HI
Encourage stability of political & economic policies	299	3.65	0.81	-0.20	-0.41	78.17	0.00	HI
Favorable interest rate	303	3.64	0.87	-0.30	-0.02	73.00	0.00	HI
Establishment of laws that will promote collaboration of indigenous and foreign construction partnerships	303	3.64	0.70	0.15	-0.85	90.43	0.00	HI
Increment of allocation to capital budgets in the national budget	303	3.63	0.79	-0.04	-0.46	79.81	0.00	HI
Construction materials cost	303	3.62	0.86	-0.18	-0.58	73.42	0.00	HI
The use of Building Information Modelling (BIM)	303	3.61	0.71	-0.38	-0.03	88.57	0.00	HI
Reduce time taken to process construction documents in Nigeria.	291	3.59	0.83	0.16	-0.63	74.22	0.00	HI
The use of GIS	303	3.57	0.89	-0.26	-0.18	69.47	0.00	HI
Promote sustainable building constructions	303	3.55	0.82	-0.46	0.32	75.65	0.00	HI
Regulation of indigenous and foreign construction practices	303	3.47	0.75	-0.28	0.64	80.44	0.00	AI
Encourage space management by increasing the floor height of buildings	303	3.38	0.95	0.02	-0.54	62.26	0.00	AI
Increase infrastructural development and assess to construction sites.	303	3.33	0.87	0.05	-0.72	67.04	0.00	AI

Note; df= degree of freedom, MS = Mean Score, SD= Standard Deviation, S= skewness; K = kurtosis, t = calculated t,

The mean values that evolved are as follows: mean value of ≥ 4.50 represents “Very High Level (VHL)”, 3.50-4.49 represents “High Level (HL)”, 2.50 -3.49 represents “Average Level (AL)”, 1.50-2.49 represents “Low Level (LL)” and 1.00-1.49 represents “Very Low Level (VLL)”.

From Table 5, the skewness and kurtosis values of the data collected based on the factor affecting allocation of subsidies for construction business in Nigeria are less than two (2) and seven (7), respectively. The fraudulent practices with a Mean Score (MS) of 4.08 and a Standard Deviation (SD) of 0.89. In Nigeria, people now routinely engage in fraudulent activities in both the public and private spheres because they lack morality. Nigerian mostly witness tax fraud, auditing fraud and financial fraud which are detriment to the growth of infrastructural development in the country (Forae & Gold, 2024; Oranefo & Ufaroh, 2024). The second factor affecting allocation of subsidies for construction business is high cost of construction materials (MS=4.04; SD=0.89). Nigerians' disposable incomes and purchasing power are also impacted by the growing costs of building materials, which exacerbates employment and slows down the development of infrastructure (Arijeloye *et al.*, 2024). The Nigeria government should make laws that will regulate the price of building material. The third factor affecting allocation of subsidies for construction businesses is corruption (MS=3.96; SD=0.84). As the country metamorphosis from military to democratic administration, the rate of political corruption that exists in large-scale infrastructure projects increases (Oluseye, 2024). Corruption in Nigeria is one of the multiple long-term significant unresolved economic and political conflicts confronting Nigeria that have generated severe degradation (Okwudili *et al.*,2024). Level of depreciation/appreciation of the country’s currency in Nigeria ranked fourth (MS= 3.92; SD = 0.84), while poor management (MS= 3.87; SD = 0.80) ranked fifth among the factor affecting allocation of subsidies for construction business in Nigeria. The least is size of construction project (MS=3.32; SD=0.65). All the listed factors are significant (0.000) at Sig. (2-tailed) and the calculated table value (t) ranges from (t= 62.86) been the lowest to (t= 100.16) been the highest.

Table 5 Factors affecting the allocation of subsidies for construction businesses in Nigeria

Factors	df	MS	S D	S	K	t	Sig. (2-tailed)	Remark
Fraudulent practices	303	4.08	0.89	-0.84	0.58	79.19	0.00	HL
High cost of construction materials	303	4.04	0.89	-0.61	-0.50	80.23	0.00	HL
Corruption	303	3.96	0.84	-0.20	-0.98	81.55	0.00	HL
Level of depreciation/appreciation of the country’s currency	303	3.92	1.01	-0.63	-0.33	67.55	0.00	HL
Poor management	303	3.87	0.80	-0.53	0.82	84.13	0.00	HL
Interest rate fluctuation	303	3.84	0.78	-0.39	-0.11	85.87	0.00	HL
Economic sabotage	303	3.82	0.66	-0.59	0.81	100.16	0.00	HL
High cost of standard of living in the country	303	3.80	0.89	0.06	-1.16	74.47	0.00	HL
Availability of information and communication Technology	303	3.72	0.94	-0.28	-0.80	68.93	0.00	HL
Availability of statistical data on construction activities	303	3.71	0.71	-0.65	0.43	90.59	0.00	HL
Developmental framework to guide practicing of construction professionals in the country	303	3.67	0.79	-0.20	-0.44	81.45	0.00	HL
Regulation and permit	303	3.67	0.82	0.33	-0.79	78.18	0.00	HL
Construction business cost benefit analysis by the government	303	3.66	0.81	0.39	-0.86	79.21	0.00	HL
Availability of physical facilities	303	3.59	0.82	0.01	-0.54	75.82	0.00	HL
Strategic master plan for construction activities	303	3.58	0.73	-0.18	-0.30	85.31	0.00	HL
Neglect of research outputs from construction researchers on areas that will promote construction businesses.	303	3.58	0.77	-0.38	1.00	81.39	0.00	HL
Availability of advance technology and innovation	303	3.56	0.88	-0.30	-0.64	69.71	0.00	HL
Change in construction policies by the government	303	3.54	0.81	-0.52	0.39	75.21	0.00	HL
Financial stability of the company carrying out construction businesses	303	3.51	0.80	0.19	-0.48	76.17	0.00	HL
Stakeholders’ communication and support for feedbacks	303	3.50	0.85	0.13	-0.61	71.62	0.00	HL
Availability of resources	303	3.49	0.79	0.02	-0.42	76.51	0.00	AL

Ignorance on the importance of construction subsidies to economic development	303	3.48	0.96	0.01	-0.55	62.86	0.00	AL
Economic sabotage for personal benefits	303	3.47	0.85	-0.43	-0.67	71.11	0.00	AL
Slow decision making and implementation processes	303	3.47	0.85	-0.18	-0.63	71.11	0.00	AL
Size of the construction project	303	3.32	0.65	0.99	0.90	88.37	0.00	AL

Note; df= degree of freedom, M.S = mean score, S. D= Standard Deviation, S= skewness; K = kurtosis, t = calculated t,

5. Conclusion and Recommendations

Construction industry is the only sector that have not been subsidized. Now that petroleum subsidy has been removed in Nigeria, the study terms to guide the Nigeria government on steps that will grow the non-oil sector of the economy especially the construction sub-sector after the removal of fuel subsidy. The study emphasizes the importance of construction subsidies in improving essential infrastructure and highlights the potential consequences of their implementations. The study recognizes buying and selling of construction materials as the most successful construction business in Nigeria. In addition, the study identifies the engagement of tradesmen/skilled workers, unskilled workers, manufacturers of construction materials as the most favoured construction business in Nigeria. The study favoured profitability to the investor or client, resource management and control, cost performance, time performance and adequate conflict management mechanisms as the factors considered in rating the performances of construction businesses in Nigeria.

The study recommends the establishment of construction-related institutions, enforcement of health, safety, and hazards prevention policies, exchange rate moderation for construction business, signing of the National Building Code (NBC) to check professionalism, monitoring of the implementation of development permits by construction regulatory bodies and training of construction professionals as ways to enhance the non-oil economic sector especially the construction industry. However, the construction business subsidy will only be effective if resources are adequately managed, fraudulent practices are curbed, high cost of construction materials are regulated, and corruption is controlled. Also, the stabilization of the currency will reduce fluctuation in the prices of construction material.

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