Construction Skilled Labor Adequacy and its Impact on Nigeria Economy

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Abstract

Economic development in developing nations like Nigeria heavily relies on the construction sector. However, a major challenge in Nigeria's construction industry is the shortage of skilled labor. This research aims to evaluate the impact of having an adequate skilled labor force on Nigeria's economy. In order to accomplish this, we conducted an extensive literature review and designed a questionnaire survey for construction professionals in Oyo State, Nigeria. After multiple reminders over five months, 221 responses were collected by the deadline. Descriptive statistical analysis of the data revealed that having an adequate skilled labor force significantly reduces construction time overruns, improves project quality, increases productivity growth, reduces cost overruns, and decreases reliance on foreign labor and inputs. The study concludes that investing in the development of skilled labor in the construction sector is more than just an economic improvement strategy; it is a comprehensive approach to national development. The benefits extend across all facets of society, fostering a virtuous cycle of economic growth, social harmony, and improved living standards.

Keywords
Construction, Economy, Improvement, Labor, Productivity.

1. Introduction

Economic development is largely dependent on the construction sector, especially in developing nations like Nigeria. It makes a major contribution to gross domestic product (GDP) and is essential for infrastructure development, employment generation, and general economic expansion (Saka and Olanipekun, 2023). This industry is responsible for constructing infrastructure such as roads, bridges, residential buildings, and industrial complexes that other industries depend on to run smoothly (Akomah et al, 2020). Nonetheless, one of the most critical challenges facing Nigeria's construction sector is the lack of laborers with the necessary skills. In the construction sector, skilled labor refers to people who have received specific training, knowledge, and experience that enable them to carry out difficult tasks effectively and safely (Brucker et al., 2021). This includes, heavy machinery operators, masons, carpenters, electricians, and plumbers, among others.

Historically, the Nigerian construction sector has faced a number of challenges, such as a lack of industry collaboration to build a competent workforce and inadequate training and vocational education. The Nigerian educational system has historically placed greater emphasis on academic credentials than on technical and vocational training, which has resulted in a mismatch between the skills required by the construction sector and the talents that are readily available on the job market (Yusoff et al., 2021). The Nigerian Institute of Building (NIOB) asserts that there is a large discrepancy between the supply and demand for suitably qualified labor. Prior studies have emphasized the complicated implications of a lack of skilled personnel in the building sector. For example, Oseghale et al. (2015) stressed the need for trained labor to guarantee that building projects follow the necessary guidelines and regulations, resulting in long-lasting and secure construction. According to Brucker et al (2021), a deficiency of skilled personnel can result in substandard craftsmanship, greater material waste, and prolonged project timelines, all of which raise the building cost overall.

Moreover, the industry's capacity to enhance project results and productivity is restricted by the lack of skilled personnel, which impedes the adoption and execution of novel construction technologies and inventive practices

(Akomah et al., 2020). A lack of trained workers in Nigeria's construction sector has serious economic consequences. A vibrant building industry is one of the main forces driving economic expansion, job creation, and poverty reduction. Particularly important in a nation with high unemployment rates is the sector's capacity to take on a sizable pool of young people without jobs. In addition to restricting employment prospects, the lack of qualified workers impacts the quality of infrastructure development, which is necessary to boost commerce, lower transportation costs, and enhance the general business environment (Saka and Olanipekun, 2023). Furthermore, as noted by Oseghale et al (2015), insufficient infrastructure development reduces Nigeria's ability to compete on the international stage. There is need to take targeted actions to address the skilled labor shortage. These interventions include the creation and execution of extensive training programs, improvements to vocational education, and increased industrial cooperation (Pathirana, 2021). The construction industry's ability to produce high-quality, effective, and sustainable projects can be greatly increased by making improvements to the standard and accessibility of training for personnel in the field. Additionally, encouraging a culture of continuous education and skill development within the sector will assist employees in keeping up with emerging trends and best practices, which can enhance overall output and project results (Rahim et al., 2016).

The aim of this research is therefore to evaluate the impact of adequate skilled labor adequacy on Nigeria economy.

The Nigerian construction industry's growth and development are hampered by a severe dearth of sufficiently skilled personnel. Addressing this difficulty is vital for guaranteeing the quality, efficiency, and long-term viability of building projects, which are critical to the country's economic development. Therefore, there is a need to understand the impact of adequate skilled labor on the Nigerian economy.

2. Literature review

Saka and Olanipekun (2023) used econometric approaches to investigate the relationship between Nigeria's economic development, construction industry output, and imports from 1970 to 2016. The findings demonstrated that, excluding imports, there is a linear relationship between the economy and construction sector production; however, considering imports revealed that building sector output Granger causes imports. The study indicated that economic and building policies could have an impact on construction imports in Nigeria and other emerging nations. Brucker et al. (2021) examine the literature on labor shortages in the EU, notably in the construction sector, as we approach the Construction 4.0 era. It emphasizes the growing labor shortages caused by a diminishing and aging population, as well as the disparities in classification and measuring methodologies employed by EU member states. Despite the unrestricted movement of workers, it is unclear if migrant labor can entirely alleviate these shortages. Rahim et al. (2016) explore sustainable construction principles and investigate the elements that contribute to labor shortages in the industry, providing ways for overcoming these issues and producing sustainable construction workers.

Hamid et al. (2013) conducted a survey of 35 construction sites in Johor Bahru, Malaysia, to investigate the labor shortage. It seeks to determine the present labor deficit, assess contractor issues, study hiring procedures, and investigate options for overcoming labor shortages. The SPSS 16 analysis finds a 12.14% labor shortfall, which equates to 360 people across the examined projects. Akomah et al. (2020) investigate skilled labor shortages in the building construction business of the Central Region. Using a poll of project managers, site engineers, and foremen, the report identifies serious shortages of painters, decorators, electricians, and tile installers. The shortages are linked to socioeconomic situations, external forces, work attractiveness, characteristics, satisfaction, industry constraints, and personal considerations. Pathirana (2021) discusses the issues of attracting, training, and retaining qualified workers in Sri Lanka's construction business, which have been compounded by the COVID-19 pandemic. Addressing this shortfall is critical for maintaining industry momentum and progress.

Oseghale et al. (2015) examined skilled labor requirements in Edo State's construction industry, revealing acute shortages due to ambiguous career pathways, excessive worker mobility, and poor wages. Data study found that organizations do not train their competent personnel, and employees are hesitant to promote the profession to their children. As a result, enterprises suffer increased labor costs and project delays. Furthermore, the survey identified an aging workforce and low entrance rates for young workers into building trades. Ho (2016) identifies practical ways for addressing labor shortages, evaluates their effectiveness, and creates a conceptual labor supply model. Three quick-win options include raising worker wages, importing foreign labor, and engaging businesses in training. Other tactics are also useful for medium- to long-term solutions. Yusoff et al. (2021) investigate the association between skilled workforce shortages and project performance in the construction industry. The findings revealed that project-related and human capital variables contribute to skilled labor shortages, which negatively impact construction project performance. The findings can assist industry players in better managing building projects by identifying and addressing skilled labor shortages.

2.

Atomen et al. (2015) address worker productivity challenges in Nigeria's construction industry by identifying and ranking 18 contributing factors using a survey. The poll, which received 87% responses from 120 distributed questionnaires, identified important issues affecting labor productivity, such as non-professional engagement, material shortages, cost variations, supervisor recruiting, weather, and conflicts. Worker recruiting was determined to be of minor significance in the researched areas. Olanrewaju et al. (2018) conducted a survey of 244 respondents to investigate the causes and consequences of Nigeria's 2016 economic recession on the building construction industry. Key reasons found were unstable exchange rates, a decrease in crude oil volume and price, and significant corruption, while important consequences included high unemployment, bankruptcy, and lower mortgage lending rates. To alleviate the effects of the recession, the report advises stabilizing exchange rates, diversifying the economy, enhancing transparency, and revising lending policies.

3. Methods

The aim of this research is to evaluate the impact of adequate skilled labor on the Nigerian economy. To achieve this, an extensive literature analysis was conducted to inform the design of a questionnaire and the methodology for administering a questionnaire survey to gather data. The utilization of this particular research methodology was motivated by its capacity to gather a comprehensive spectrum of consensus from participants, to effectively handle a substantial number of respondents, and to enhance the generalizability of the findings. The research topic was addressed through the implementation of a cross-sectional survey research strategy, which aimed to achieve the objectives of this study. Bryman (2016) asserts that academics employ this methodology within quantitative research to delineate the attitudes, concepts, behaviors, or attributes of the populace. A survey is distributed to either a representative sample of individuals or the entire community. The primary dataset was established based on convenience sampling. When there is insufficient data available on the size of the population and the sample frame, the chosen strategy is deemed suitable. Although the findings may lack generalizability, the conclusion drawn from the research could still serve as a valid reflection of the broader community. The central limit theorem (CLT) and this assertion are in concurrence.

Based on the Central Limit Theorem (CLT) theory, it can be observed that as the size of the sample increases, the distribution of sample means tends to approach a normal distribution (Olanrewaju et al., 2023; Oni et al., 2022). In order for the Central Limit Theorem (CLT) to hold true, it is generally accepted that a sample size of 30 or above is statistically sufficient. The survey instrument was partitioned into two distinct portions to facilitate the collection of data. Section A pertains to the demographic characteristics and professional backgrounds of the respondents, while Section B encompasses the various impacts of adequate construction-skilled labor in the Nigerian economy. In the second section of the survey, participants were requested to assess their level of agreement regarding the identified impacts of adequate skilled labor in the Nigerian economy. This assessment was conducted using a five-point Likert scale, where a rating of 5 indicated strong agreement, 4 indicated agreement, 3 indicated partial agreement, 2 indicated disagreement, and 1 indicated strong disagreement.

The survey questionnaire was distributed among construction professionals located in Oyo State, Nigeria. Nevertheless, a total of 221 responses were collected by the designated deadline, following multiple reminders that were sent out over a period of five months. Descriptive statistics were used to examine the data. For interpretation purposes, the mean ranges from (0–1 = strongly disagree), (1.01–2.0 = disagree), (2.01–3.0 = partially disagree), (3.01–4.0 = agree), and (4.01–5.0 = strongly agree).

4. Results

4.1 Results (Respondents Background)

Site supervisors make up 38% of the respondents, followed by engineers (8.3%), project managers (19%), architects (17.4%), and safety officers (7.4%). This suggests that the respondents represent a range of positions within the company, especially important ones at the top who are knowledgeable about skilled labor in construction (Fig. 1).

2.

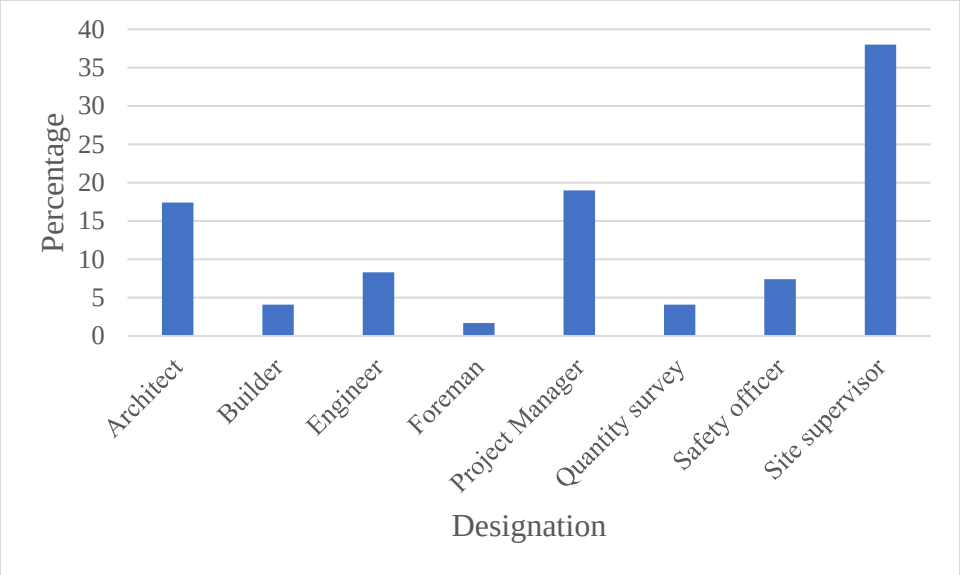

Figure 1: Designation of respondents

In addition, 9.1% of respondents had over 20 years of experience, 15.7% had between 11 and 15 years of experience, and 69.6% had worked on construction sites for more than five years. These respondents were therefore in the best position to respond to questions accurately due to their extensive on-the-job experience (Fig 2).

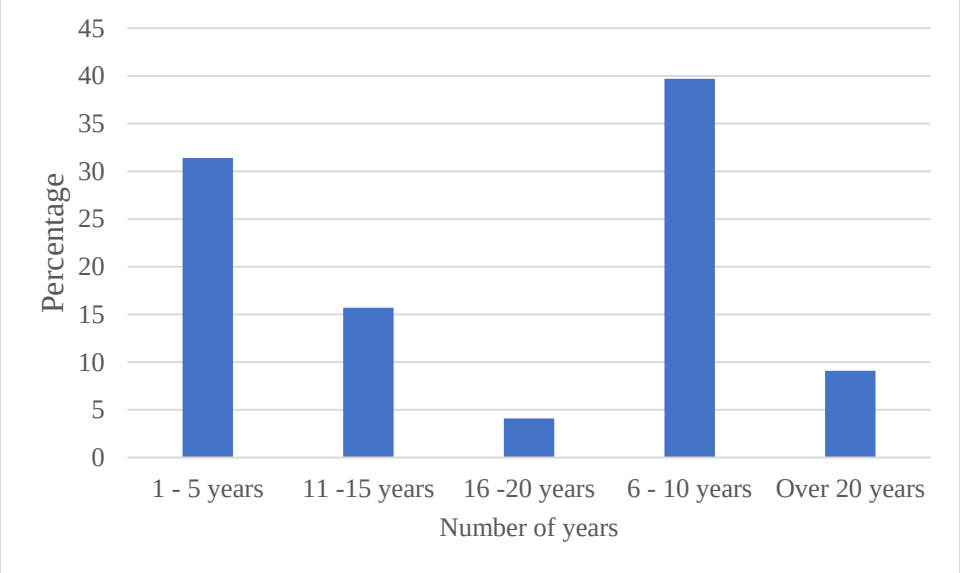

Figure 2: Year of experience

4.2. Results (Descriptive statistics)

The Cronbach Alpha value for the data was quite high 0.974 (see Table 1), and it was also greater than 0.90 for all the variables if an item was deleted (Table 2) validating a good reliability. Additionally, the data's validity is quite good because every variable is significant at a 99% confidence level (Table 1).

Table 1 Reliability Statistics

Cronbach's Alpha	N of Items
0.974	15

2.

According to the findings, respondents indicated that they strongly agree with 60% of the identified impacts of adequate construction labor on the Nigerian economy in their own view, as they all have a mean between 4.01 and 5.0. In their own view, the respondents also indicated that they agree with 40% of the identified impacts of adequate construction labor on the Nigerian economy, as they all have a mean between 3.01 and 4.0.

Table 2 Descriptive statistics

Factors	Cronbach's Alpha if	Validity	Mean	Std. Deviation	Rank
Reduce construction time overrun	0.956	0.000	4.31	0.815	1
Improve construction project quality	0.957	0.000	4.31	0.719	2
Increase productivity growth	0.955	0.000	4.21	0.903	3
Reduce construction cost overruns	0.956	0.000	4.10	0.898	4
Reduce dominance of foreign labors and inputs	0.955	0.000	4.08	0.997	5
Reduce unemployment rate	0.956	0.000	4.07	0.920	6
Reduce litigation and claims	0.955	0.000	4.07	0.887	7
Promote a descent society	0.957	0.000	4.02	1.020	8
Reduce construction project failure	0.956	0.000	4.02	0.922	9
Increase internal revenue	0.956	0.000	3.99	1.076	10
Reduce infrastructural deficits	0.958	0.000	3.98	0.931	11
Enhance speedy infrastructural development	0.957	0.000	3.98	0.925	12
Improve security	0.956	0.000	3.97	1.072	13
Reduce illegal migrants	0.955	0.000	3.95	1.071	14
Reduce crime rate	0.956	0.000	3.95	1.015	15

Cumulatively, all the identified factors have a strong impact on the Nigerian economy, with an average mean of 4.06. The standard deviation also shows that the responses are clustered around the mean, with an average standard deviation of 0.951.

5. Discussion

The development of suitable skilled labor is an essential component of sustaining Nigeria's economy. In addition to the short-term benefits of better construction techniques, skilled labor has an intricate impact on the construction business. A major benefit of having trained workers is that construction projects don't take as long as expected. Projects that are finished on time avoid the extra expenses and lost revenue that come with delays. Skilled labor considerably reduces time overruns having a mean value of 4.31 and standard deviation of 0.815, which improves resource utilization and project turnover efficiency (Yusoff et al., 2021). Enhancing the quality of construction projects is an additional crucial effect of a proficient workforce having a mean value of 4.31 and standard deviation of 0.719. Specialized workers guarantee that infrastructure is constructed to high standards, reducing the need for repairs down the road and improving the robustness and safety of constructions. According to the International Labour Organization (2018), having competent workers improves the quality of constructions, which is critical for the long-term viability of infrastructure and general public safety. The availability of skilled workers also has a direct impact on the construction industry's productivity growth having a mean value of 4.21 and standard deviation of 0.903. Increased productivity is the result of skilled workers utilizing cutting-edge construction technologies and implementing effective work procedures. According to saka and Olanipekun (2023), higher productivity in the construction sector has a major role in overall economic expansion.

Similarly, with experienced workers, construction project cost overruns can be greatly reduced having a mean value of 4.10 and standard deviation of 0.898. Hiring personnel with the necessary training has several direct benefits, including reduced waste, efficient resource management, and accurate cost estimation. According Oni et al (2023) having experienced workers helps to minimize the likelihood of cost overruns, which keeps projects within budget and maximizes financial resources. Having a mean value of 4.08 and standard deviation of 0.997 the Nigerian construction sector can also reduce its reliance on imported labor and materials by creating a trained local workforce. This change promotes economic self-reliance by supporting regional businesses and jobs, in addition to keeping money in the country. According to Akomah (2020), supporting local skill development helps promote economic sustainability by reducing reliance on imported labor. Developing local construction skills also has the important benefit of addressing the unemployment rate having a mean value of 4.07 and standard deviation of 0.920. Skill development training programs reduce unemployment and the social problems it is linked to by creating job

opportunities, especially for young people. According to the National Bureau of Statistics (2020), initiatives aimed at developing construction skills have successfully lowered Nigeria's unemployment rates, which has raised consumer spending and decreased social discontent.

Because skilled labor ensures respect for quality standards and contractual duties, it also lowers litigation and claims in the construction business having a mean value of 4.07 and standard deviation of 0.887. For projects to be executed smoothly and to retain investor trust, there must be legal stability. According to Oseghale et al. (2015), having skilled personnel on hand helps to reduce the likelihood of legal challenges and create a stable atmosphere for construction. The other, more general effect of skilled labor is to promote a decent society having a mean value of 4.02 and standard deviation of 1.020. Employment brought about by skill development raises living standards and decreases poverty, promoting social stability and a more just society. The benefits that employment and skill development in the construction industry have on society are highlighted by the International Labour Organization (2018). Having a skilled workforce also has a direct effect on lowering construction project failure rates having a mean value of 4.02 and standard deviation of 0.922. The danger of project failure is reduced by making sure that standards are upheld and construction processes are correctly followed, which encourages more investment in the industry and accelerates economic progress. Increased internal revenue is another important effect of successful construction projects; Pathiaran (2021) discusses how trained labor can decrease project failure risks and encourage long-term growth. Having a mean value of 3.99 and standard deviation of 1.076, successful projects increase internal revenue through taxes, levies, and better infrastructure, all of which may be put back into the economy to spur more growth. The contribution of construction projects to national revenue and economic stability is a topic covered by the International Monetary Fund (2022). For a country to thrive, it is imperative to address its infrastructure deficiencies, and trained labor is essential to this effort having a mean value of 3.98 and standard deviation of 0.931. By properly utilizing skilled labor, vital infrastructure can be quickly constructed, thereby addressing the nation's infrastructure demands and promoting regional growth and economic activity. In order to solve infrastructural deficiencies, trained personnel are crucial (Yusoff et al., 2021).

Similarly, having a mean value of 3.98 and standard deviation of 0.925, adequate skilled labor makes rapid infrastructural development possible by guaranteeing the construction of vital facilities for communities and businesses, improving connectivity, and promoting economic integration. The impact of skilled workers on quickening infrastructure development is noted by Saka and Olanipekun (2023). Increased security is another unintended consequence of adequate skilled labor having a mean value of 3.97 and standard deviation of 1.072. High-quality, well-built infrastructure makes a system safer and more dependable, while also lowering its susceptibility to hazards such as natural catastrophes. Brucker et al. (2021) talks about how improving national security through high-quality construction is important. Increasing local construction abilities has social benefits, such as lowering crime and illegal immigration rates. Encouraging people to migrate illegally in search of work is lessened when there are plenty of employment opportunities available, upholding social order and improving national security. Saka and Olanipekun (2023) emphasize the connection between lower crime rates and employment prospects.

5. Conclusions

The results highlight the significant effect that construction skilled labor has on Nigeria's economy. Enhancing the skills of the workforce in the construction sector addresses a number of important issues, such as reducing construction time and cost overruns, increasing productivity, and improving project quality. The development of local skilled labor promotes economic self-reliance and keeps financial resources within the nation by reducing the dominance of imported labor and inputs. Furthermore, the provision of job prospects through skill development programs, which also contributes to a decrease in social unrest and an improvement in societal stability, is a major factor in lowering unemployment.

Similarly, employing skilled personnel reduces the likelihood of litigation and claims, which attracts investors and creates a stable environment. Sustainable economic growth is aided by this stability and reduces chance of construction project failure. These enhancements have far-reaching effects: having a trained labor in construction leads directly to more internal revenue, faster infrastructure development, and lower infrastructure deficits. A more prosperous and stable society is also a result of the positive social effects, which include lower crime rates, a decrease in illegal immigration, and increased security.

Investing in the development of construction skilled labor is an all-encompassing approach to national development, not just an economic improvement strategy. The advantages penetrate all facets of society, establishing a virtuous cycle of economic growth, social harmony, and standard of living. It is therefore imperative that Nigeria policymakers and stakeholders give the development of construction skilled labors top priority in order to guarantee a strong, resilient, and self-sufficient economy.

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