

The Impact of Inadequate Infrastructure on Economic Activities and Quality of Life of Nigerians

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Abstract

Essentially, the magnitude of economic activities and quality of life of people in a given country are largely dependent on not only availability of basic infrastructure but also the state of the infrastructure. This study therefore seeks to unveil the impact of inadequate infrastructure on economic activities and quality of life of Nigerians. The study was descriptive research and used the method of contents analysis of the existing literature as data sources. The study used the infrastructure development theory, the economic growth theory and quality of life theory to light the central theme of the study and to deepen the understanding of the stance of the paper. It was discovered that the poor condition of the infrastructure in Nigeria has negative implications on economic activities, growth and the quality of life of Nigerians. The study suggests, among other things, that Public Private Partnerships (PPI) should be further strengthened in the provision and maintenance of public infrastructure and that advanced technologies should be used for monitoring and management of infrastructure to enhance decision making and the efficiency of operation.

Keywords: *Impact, Inadequate, Infrastructure, Economic Activities, Quality of life.*

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Background of the Study

The importance of infrastructure in determining the performance of the economy and quality of life in societies is well established. Infrastructure plays a critical role in driving Nigeria's economic growth and raising standard of living amid its diverse economic activities and social-economic challenges. Infrastructure broadly refers to a physical asset such as transportation network, energy infrastructure, water and telecommunications which directly boost national productivity and improve living conditions (World Bank, 2023). Hence, it is important to build infrastructure to facilitate economic activities and productivity. Calderón and Servén (2014) pointed out that infrastructure plays an important role in supporting economic operations, as it lowers transaction cost, widens market access and facilitates efficient production. Likewise, the economy is enhanced by better rural communities-to-urban markets, lower logistic costs, and better trade-outcomes that can be realised by investing in transportation infrastructure (Akinwale 2022). For instance, economic activities are thereby boosted through improved rural communities to urban markets, reduced logistic costs and promoting trade-outcomes that can be achieved through investment in transportation infrastructure (Akinwale 2022). As in many countries, infrastructure investment is still crucial to Nigeria's economic growth and competitiveness.

Energy, transport and water infrastructure remain severely deficient in Nigeria and continue to limit Nigeria's economic growth. The World Bank (2023) reports that poor infrastructure has been impacting the economy by increasing the costs of business operations and also decreasing investment attractiveness. For instance, businesses face great economic challenges due to the absence of reliable electricity, which can negatively affect the overall productivity of businesses (Fowowe, 2021). Likewise, inadequate investments in water supply and sanitation have led to the widespread occurrence of waterborne diseases and have negatively affected public health outcome (Okpala & Asogwa, 2023). Similarly, investments in education infrastructure can increase access to quality education, enhance human capital, and deliver wide-ranging long-term socio-economic outcomes (Aliyu, Bello, & Ibrahimi, 2022). The role of infrastructure goes beyond economic growth, and is also directly related to citizens' quality of life. The availability of functional infrastructure is a key determinant in access to healthcare, education, clean water, sanitation, and other basic services. An improvement of such infrastructure leads to an improvement in people's living conditions, due to access to essential services (Harris 2022).

Furthermore, the recent policy framework and investments in Nigeria are indicative of a change in attitude to promoting social and economic development through the use of modernized infrastructure. Mitigating this shortfall, the Federal government launched a number of large-scale projects including the national Integrated Infrastructure Master Plan (NIIMP), which offers a blueprint for developing infrastructure in the priority sectors (Federal Ministry of Finance, 2021). Yet all these efforts have been unsuccessful as systematic challenges mainly on financing, poor maintenance culture and delays in execution are yet to slow the pace of growth (Ogunleye, 2023). It is therefore apparent that infrastructure investment and its effect on the economic performance and quality of life in Nigeria is still a

field on the dynamism, i.e., it needs constant research to fully understand its implications. This study examines the complex effects of infrastructure on the Nigeria Economy and quality of life, offering policy advice and investment opportunities to help solve the current problems in the country and create sustainable growth.

Conceptual Clarification.

Infrastructure, Economic Activities, and Quality of Life.

To understand the interplay between infrastructure, economic activities and quality of life requires a clear conceptual clarification. Aschauer (1989) thus defined infrastructure as the basic physical and organizational structures necessary for the functioning of society and industries, in the context of developing countries like Nigeria, and in the process of basic research, has argued that there is significant improvement in productivity when infrastructure investment is made as these investments reduce the transaction cost and increase the efficiency of the market. This finding is supported by the World Bank (2023) which states that good infrastructure facilitates activities by enhancing connections and reducing operational delays.

However, economic activities include the primary sector (agriculture), secondary sector (manufacturing), and tertiary sector (service) in the processes of producing, distributing and consuming good and services (Ayara, 2014; Smith, 1776). In Nigeria, the economy is very diverse, comprised of both formal and informal markets. Strategic investments in infrastructure like transportation and energy have a direct impact on these sectors by raising productivity, lowering operational expenses and improving access to market (Calderón & Servén, 2014). Growth of the transportation system, for example, is an important catalyst for the growth of the economy by assisting in the integration of the market and the efficiency of trade (Akinwale, 2022). Quality of Life is also a measure of well-being and life satisfaction that is multidimensional and other than economic output. It includes financial indicators such as income and employment indicators but it also includes health indicators, education indicators, environmental quality indicators and social indicators (Rapley, 2003). Therefore, the relation between infrastructure and quality of life is important as infrastructure has an impact on access to essential services and living conditions. According to Okpala & Asogwa (2023), the water supply and sanitation system decrease the rate of waterborne diseases and enhance the health of the community. Also, investment in dependable energy and transportation system can improve educational access and economic prospect, ultimately, elevating overall quality of life (Harris, 2022).

Clearly infrastructure is the backbone of economic activities and it determines the daily living standard of people in developing nations such as Nigeria, therefore, it is important to address the challenge of infrastructure in developed countries to boost their economic growth and improve people's living standard.

The State Infrastructure in Nigeria and the Impact on Economic Activities

As previously mentioned, infrastructure are a vital driver of economic activity and are important for their role in enabling, distributing and consuming. The status of physical

infrastructure is one of the main factors determining the economic performance of Nigeria. Nigeria has serious infrastructure challenges in some of the critical sectors. According to the National Integrated Infrastructure Master Plan (NIMP), assert that Nigeria needs a lot of infrastructure, with major gaps in transit, power and water supply (Federal Ministry of Finance, 2021). The next paragraphs describe the state of Nigeria's infrastructure infrastructure in its key dimensions.

Transportation Infrastructure: Transportation in Nigeria is made up of road, railway, maritime port and aviation infrastructure. Although the road network is extensive because of poor maintenance and heavy usage have caused several road deteriorating (Ogunleye, 2023). Moreover, Edino et al. (2022) found that there is always traffic jam of heavy duty vehicles such as transporting cement, iron rod and farm activities, most often accidents occur due to deteriorating road corridors. Furthermore, the railway network once played a key role in the transport system in Nigeria is underdeveloped and needs huge capital investment to enhance its capacity and efficiency (Ojo, 2022). These include congestion and logical inefficiencies faced by the port and airport as it affects domestic and international trade (Adeyemo, 2023).

Energy Infrastructure – Energy infrastructure is also one of the key structural vulnerabilities of Nigeria. Nigeria has long suffered a shortage of electricity, and the lack of power and electricity instability is affecting homes and industries around the country. The problem of Nigeria's power sector is the lack of adequate power generation capacity and the outdated infrastructure together with the inefficiencies in power distribution (Fowowe, 2021). This situation has resulted to high cost for commercial operation and has impedes industrial growth and economic diversification.

Water Supply and Sanitation: Water supply and Sanitation facilities in Nigeria can also be described as being in poor condition. Safe drinking water and sanitation system is lacking, especially in the rural areas (Okpala & Asogwa, 2023). Lack of these services has seriously compromised public health outcomes, directly limiting economic productivity and quality of life.

Infrastructure Impact on Economic Activities

The critical condition of the infrastructure in Nigeria has far-reaching ramifications on the activities of the economy in the different sectors as elaborated below:

Impact on Business Operations: Lack of transport infrastructure leads to higher logistics costs and less efficient supply chains. Firm level competitiveness is also eroded by substandard road conditions because of delay in delivery of good supplies (Akinwale, 2022). Likewise, high-degree of grid instability requires a high price of alternative energy generation leading to high operating costs and low scalability and innovation of businesses (Fowowe, 2021).

Effect on Trade and Market Integration: Transportation delay and maritime port inefficiencies lead to high cost of the commercial sector of Nigeria and extended freight

delays. The operational challenges make the country unable to effectively engage in the regional and global value chain. This jammed up transport corridor and port delay is a significant trade hindrance, as affirmed by Adeyemo (2023), thereby compromising international competitiveness and export-led economic growth.

Industrial Growth: Lack of infrastructure hampers the growth of industries by reducing production capacity and reducing the long-term investment in the industry. Nigeria's weak attraction for domestic and foreign investors due to persistent energy deficits and inefficient transport system is evident (Calderón & Servén, 2014). Infrastructural deficits can cause a sustained drag on overall economic growth if they hinder the expansion and diversification of industry, as the impexious cost of doing business is stem due to infrastructural deficits (World Bank, 2023).

Regional Disparities: Disparities in the provision of infrastructure are a cause of regional economic imbalances in Nigeria. Specifically, poor infrastructure in rural and underdeveloped areas restricts economic opportunities, market access and has fuelled spatial inequalities (Ogunleye, 2023). Specific investments in infrastructure can go a long way towards helping to balance economic growth, equitably. The evidence above shows that Nigeria's infrastructure also plays a significant role in the development of its economic activities, while access to electricity, transportation and water supply at a very low rate also affects the operations of industrial sectors, competitiveness of businesses and balanced development of the regions.

Notable Challenges in Nigeria's Infrastructure Sector

Nigeria's infrastructure has structural problems that undermine its development and effectiveness. To realize economic activities and public welfare, it is crucial to address these challenges. The major issues are:

1. The lack of investment and funding is one of the major challenges in Nigeria's infrastructure sector. Historically, funding for major capital projects has been a challenge for infrastructural projects due to competing budgetary priorities and fiscal constraints (Federal Ministry of Finance, 2021). The World Bank (2023) estimated the infrastructure financing gap to be huge, and the public sector is woefully inadequate to meet this need for the maintenance and development of infrastructure assets.
2. Poor maintenance and management of structures can exacerbate infrastructure degradation even when they have been built. Due to the absence of effective maintenance plan and inadequate supervision, infrastructure asset is in advanced disrepair. For instance, widespread surface and poor repairs are observed in many roads nationwide, affecting their usability and making it more expensive to transact across the commercial corridors (Ogunleye, 2023). Similarly, poor maintenance of electricity infrastructure causes electricity transmission failures and disruption of power supply (Fowowe, 2021).
3. Corruption and Governance Challenges: Corruption and governance challenges are

foundational issues in Nigeria's infrastructure sector that continue to pervade the country. Misuse of public funds can lead to deterioration of the quality of engineering, substandard construction practices and tardiness in project completion. Non-transparent procurement process, dishonest contract award and illegal commission are among the corrupt practices that significantly affect the efficiency of infrastructure projects (Okpala & Asogwa, 2023). In addition to these systemic distortions, there is a lack of transparency and accountability in the implementation of projects.

4. **Inadequate Technical Expertise and Capacity:** The execution of Nigeria's infrastructure strategy is hindered with shortage of skilled professionals and technical capacity. The planning, designing and effective implementation of infrastructure requires advanced technical skills. The lack of human expertise directly affects the quality and effectiveness of infrastructure development and management (Calderón & Servén, 2014). This limited capacity by some of local construction and engineering companies is an institutional constraint that prevents them from being able to take on big infrastructure projects.
5. **Political Instability and Policy Inconsistency:** Political instability and policy inconsistency can undermine the continuity of infrastructure development in Nigeria. Adverse policy shifts or the constant political changes that often occur can cause pipeline plans for infrastructure projects to be postponed. The uncertainties can also make investors apprehensive and cause a perpetual delay in projects, particularly when policies and the regulatory setup are constantly changing (Akinwale, 2022). Infrastructural strategies for economic growth are hard to sustain and maintain due to the lack of consistent regulatory and policy framework.
6. **Socioeconomic and Environmental Impacts:** Socioeconomic conflicts and environmental problems are common with major projects involving infrastructure capital investments in Nigeria. Large-scale projects can involve the displacement of people and the disruption of livelihoods in the rural areas. Additionally, poor environmental impact assessments (EIAs) may lead to pollution, habitat destruction, and other environmental problems (Harris, 2022). Balancing growth-driven development pressures with environmental governance and social equity is a challenge.
7. **Chronic delays and budget overruns in the completion of projects** are still relevant issues in the execution of Nigeria's infrastructure projects (7). These inefficiencies are driven by poor project management techniques, poor planning or delays in the bureaucracy. Inadequate administrative decision making and institutional procurement may delay project completion (Ojo, 2022). All of these inefficiencies detract from the fiscal efficiency, on-time procurement and general public good of capital infrastructure investments.
8. **Regional Disparities:** Spatial misallocation of infrastructure is a structural constraint in Nigeria for a balanced regional development. Rural and underserved areas are likely to have poorer infrastructure than urban areas and particularly major cities such as Lagos and Abuja. This imbalance can exacerbate regional disparities, limiting

market access, employment prospects, education, and access to basic health services in under-served areas (Adeyemo, 2023). To rectify these imbalances, targeted investments are needed, fair resource allocation formulas must be developed, and rural-urban realities must be taken into account in designing place-based policies. The need to invest in infrastructure in a more balanced manner, both in terms of quantity and quality, is crucial for the expansion of opportunity and for inclusive national development. The various challenges facing the Nigerian infrastructure are interrelated and need to be addressed collectively. Steps like more investment, better maintenance, more transparency in governance, optimised project implementation, and more focus on regional disparities are crucial to turn the tide on the gap in infrastructure. Furthermore, the structural constraints offer a framework to analyse the potential role of strategic infrastructure in driving economic activities and enhancing living standard in Nigeria.

Theoretical Framework

The Integrated theoretical approach was used to analyse the theoretical framework of this study as explained by the effect of infrastructure on economic activities and living standard in Nigeria. It is based on a blend of three theories: Infrastructure Development theory, Economic Growth Theory and the Quality-of-Life Framework to provide a multi-dimensional framework to understand the influence of availability and quality of life on macroeconomic and living standard.

Infrastructure Development Theory

According to Infrastructure Development Theory, infrastructure can be considered as a catalyst to economic growth and development at the basic level. The theory highlights the impact of physical assets (especially road infrastructure) on the transaction cost, in enhancing the economic activity; on the efficiency, in widening the market access (Aschauer, 1989). Investing in infrastructure can enhance productivity and economic growth by creating the infrastructure in turn necessary to operate businesses and conduct economic transactions (Calderón & Servén, 2014). In Nigeria, this theory implies that rehabilitating targeted infrastructure could mitigate constraints faced by businesses, stimulate industrialization and boost economic performance in the country.

Economic Growth Theory

In the macroeconomic literature at the boarder level, Endogenous Growth Theory offers some answers as to the role of infrastructure in fostering sustained economic growth. According to Endogenous Growth Theory (Romer 1990), the internal driver like human capital, technologies innovation and public infrastructure is one of the important factors which affect the sustained economic growth. It assumes that investment in infrastructure will increase productivity, which will help to disseminate new technologies, and will set the conditions for innovation. Although Nigeria faces multiple physical asset challenges which affect the economy, the Endogenous Growth Theory also advocates for infrastructure, as essential for sustained economic growth (World Bank, 2023).

Quality of life

Quality-of-life framework offers a number of criteria for assessing public infrastructure's impact on people's quality of life and their life satisfaction. It takes into account the objective indicators, like access to clean water, reliable energy and efficient transportation, as well as subjective assessment of quality of life, like satisfaction with living conditions (Rapley, 2003). The framework also shows how sufficient infrastructure can help to make quality access available to essential public service, which is an indicator of an improvement in living standard and an aid in the reduction of inequalities among two distinct groups of people. On Nigeria, this model can be used to appreciate the effects of physical infrastructure deficiencies on public health and education and its negative effects on overall wellbeing, providing a holistic perspective on the socio-economic returns of infrastructure development.

Application to Nigeria

The three theories illustrate basis for understanding the ways infrastructural investment can influence economic activities and standard of living in Nigeria. Aschauer (1989) from infrastructure development theory argues that investment in infrastructure are the drivers for economic growth because they lower the operational costs and boost productivity. In the Endogenous Growth theory emphasis is laid on the fact that infrastructural investment is important for long-term economic growth and technological development (Romer, 1990). The Quality of Life Framework also elaborates on the relationships between infrastructure and human welfare, indicating that the extension of infrastructure can increase the availability of essential services, improve the living conditions and reduce the spatial inequalities (Rapley, 2003). Thus, these theories can serve as a good basis for examining the relationship between infrastructure development and economic activities and human welfare in Nigeria.

Integration of Theories

The theories can be integrated for a strong base in studying the influence of infrastructure development on the economic activities and human welfare in Nigeria. Infrastructure Development Theory provides an explanation about how investment in infrastructure contributes to commercial productivity. Economic Growth Theory reflects these dynamics in a long-term perspective, by providing the explanation of how infrastructure can stimulate long-term economic growth. Lastly, the Quality of Life Framework highlights social benefits of infrastructure upgrade, which include the impact on the individual, access to key service and spatial equity in assessing.

Conclusion

The Nigerian infrastructure industry still has systemic issues that influence economic activities and overall health. The spread of these challenges has resulted in capital deficits, poor maintenance, corruption, technical limitations, lack of political will and spatial inequities, reducing the national output and the quality of life for many Nigerians. The study draws upon Infrastructure Development Theory, Economic Growth Theory, and Quality of Life Framework and emphasizes the linkage between infrastructure and public utilities to promote national development and to enhance social welfare. Infrastructure is not just crucial

to lower transaction costs and boost productivity, but also for promoting long-term economic growth and living standards.

In particular, the Infrastructure Development Theory suggests that infrastructure investment may result in improved economic activity itself and optimize business environment. Likewise, the Quality-of-Life Framework highlights the direct impact of infrastructure on people's quality of life, as it impacts on access to key services and on the social inequalities that people face. (Rapley, 2003) Thus, solving infrastructure challenges is very critical in Nigeria to unleash economic potentials and enhance the life of its people.

Recommendations

In view of the infrastructural problems prevailing in Nigeria and the need to boost economic activities and improve the quality of life, the following recommendations are recommended:

1. Government should encourage and create a robust PPP framework to harness the expertise and investment from the private sector to develop infrastructure. Such an approach can enable public authorities to improve efficiencies driven by the market and to find innovative solutions to complex infrastructure challenges.
2. Government to negotiate access to international financial aid and loans from development agencies and financial institutions for large-scale infrastructure projects and maintenance.
3. Stakeholders of PPP should formulate and put in place comprehensive maintenance plans to maximize the lifespan and performance of the infrastructure assets. Therefore, regular checks and prompt repair of deteriorated areas is recommended to avoid the cost of major deterioration and inefficiency.
4. Adopt Technology: In addition, it is recommended that more sophisticated technology and tools be adopted for infrastructure monitoring and management in order to improve the decision making and operational efficiency. It is highly recommended that government enhance strong anti-corruption mechanism and transparency in infrastructure projects. Some important interventions are transparency in bidding processes, periodic audits and public reporting of results of the use of public resources.
5. Public and Private sectors need to work together to draw up and execute a long-term infrastructure master plan, which is resistant to political changes and election cycles. It is essential to have strategic planning and policy continuity for the continuity of infrastructure development efforts.

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