

Evaluating the Management of Public Private Partnerships for the Provision of Affordable Housing in Nigeria

Abel Eseoghene Owotemu*, Cross Ogohi Daniel, Hadiza Saidu Abubakar

Department of Business Administration, Faculty of Management Sciences, Nile University of Nigeria, Abuja, Nigeria
Email: *abelowotemu@hotmail.com, danielcross@nileuniversity.edu.ng, saidu.abubakar@nileuniversity.edu.ng

How to cite this paper: Owotemu, A. E., Daniel, C. O., & Abubakar, H. S. (2022). Evaluating the Management of Public Private Partnerships for the Provision of Affordable Housing in Nigeria. *Journal of Service Science and Management*, 15, 392-415. <https://doi.org/10.4236/jssm.2022.154024>

Received: June 8, 2022

Accepted: July 26, 2022

Published: July 29, 2022

Copyright © 2022 by author(s) and Scientific Research Publishing Inc.
This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

The Impact of Public Private Partnership is beginning to be more pronounced in emerging markets like Kenya and Nigeria as a preferred means for the delivery of Infrastructure and Housing. In terms of its popularity, the adoption and growth of Public private partnerships has been traced to under performance of Government Budgeting and lack of sufficient funding available to government for financing the different strategically important and development focused projects (including Social Housing), this is also in addition to governments poor risk management capabilities. The challenges facing public funding and its impact on the country's development have increased the potential for public-private partnerships as an alternative to infrastructure and housing. The study examined the impact of public-private partnerships on affordable housing in Nigeria. It also includes other purposes; examining the impact of management contracts on the provision of affordable housing in Nigeria to identify the impact of the joint venture on the provision of affordable housing in Nigeria. The research adopted the survey research plan and used a structured questionnaire as a tool for data collection. Data analysis was performed in addition to mean and percentage descriptive statistics, as well as correlation and regression analysis. The results showed that Build Own Operate & Transfer Policy has a significant impact on the provision of affordable housing in Nigeria and Lease Contracts has a positive impact on the provision of affordable housing in Nigeria. The study concludes that for public-private partnerships to flourish and achieve affordable housing, each partnership must identify measures of success, be able to quantify and monitor their performance, and identify and address emerging issues. It was suggested that the government take responsibility for ensuring that an enabling institutional environment and infrastructure is provided to support PPP execution. It was also proposed that the government adopt and establish a Viability Gap fund-

ing framework to attract private sector participation. As alternative and effective sources of funding will promote affordability and enable public-private partnerships to thrive for the identification, development, funding, implementation, and successful management of affordable housing PPP's in Nigeria.

Keywords

Build, Own Operate & Transfer Policy, Lease Contracts, Public Private Partnership, Affordable Housing Delivery

1. Introduction

It has been shown in practice that the provision of effective socio-economic services to the citizens of a country can be achieved using Public Private Partnership models. This would greatly facilitate the achievement of macro-level targets in any country, largely to boost economic growth, accelerate development and reduce poverty amongst others. Developed countries use this approach most when developing their socio-economic infrastructure, and developing countries are currently paying attention in this regard as per [Dominic et al. \(2016\)](#).

This research article is organized as follows, first conducting a literature review of previous studies to identify factors that in turn forms the basis and feeds into the hypothesis formulation process, data gathering and statistical analysis. The hypotheses are tested, and the results confirmed to facilitate the development of a theoretical model as a basis for further or future research.

Housing, as a basic human need, falls into this category of services that has plagued governments worldwide. Against this background, Nigeria's housing demand underlines the importance of involving private financing initiatives in addressing housing needs. Several studies have shown that the funding requirements by government towards the provision of qualitative infrastructure in Nigeria over the next 10 years will exceed \$100 billion. However, given the limited resources available to the federal government, it is expected that alternative sources of fund should be considered towards financing infrastructure to achieve national development goals, as articulated in Nigeria's Economic Recovery and Growth Plan. According to the United Nations and the [World Bank \(2019\)](#), Housing is an essential need that helps individuals attain self-actualization in line with Maslow's Hierarchy of Needs. The evolution of housing as a strategic invention and tool also marks humankind's evolution in management, social stratification and creation of value as marked by the progression of living in rudimentary dwellings before learning to build improved shelter for protection from the vagaries of socio-environmental conditions including the desire to self-actualize. According to [Izuwah \(2019\)](#) and [Berawi \(2019\)](#), shelter evolved over time from basic wood and brick structures into standalone houses and eventually into the modern-day architectural wonders.

In respect to the findings of [Izuwah \(2019\)](#), [Kadiri \(2018\)](#) and other Scholars, public-private partnerships have had impact on the Nigerian landscape as a practice. The increased interest in public-private partnerships is linked to the insufficient resources available to the government to finance many development projects (including housing) and the weak risk management capacity of governments. The challenges facing public finance and its impact on the country's development has increased the potential for public-private partnerships as an alternative to funding infrastructure and housing. This is important because the drive for public-private partnerships indicates that private capital is being invested in tackling significant socio-economic challenges such as housing. It is therefore clear that Nigeria has not been able to efficiently implement and enforce public-private partnerships (PPPs). The research aims to uncover the challenges to implementing PPP's through the following objectives:

- 1) Identify the effects of Build-Own-Operate-Transfer policy on the provision of affordable Housing in Nigeria.
- 2) Ascertain the effect of lease contracts on the provision of affordable housing in Nigeria.

2. Literature Review

2.1. Dimensions and Types of Public Private Partnerships

There are many forms of public-private partnerships, and no two PPP projects are the same ([Ibem et al., 2018](#)). In view of the different meanings on forms of PPP, such partnerships should be developed through adequate preparation and evaluation to select the best solution for a specific project, [Sanda et al. \(2017\)](#). It should be noted that different PPP forms are easier to adapt to specific departments or project types and have been more widely used in these contexts ([Infrastructure Concession Regulatory Commission, 2012](#); [UNCTAD, 2018](#)).

The level of private participation required for a particular project can be determined by the public sector. Factors influencing this decision include the goals and objectives of the project, the level of control required by the government, and the ability of the PPP consortium to provide the required services ([Aduwo et al., 2017](#); [World Bank Group, 2018](#)). Therefore, public-private cooperation takes many forms, with different levels of participation and risks borne by the private sector. **Figure 1** below describes the scope of the PPP protocol.

2.1.1. Operation, Maintenance and Service Contracts

According to the operation, maintenance, and service contract ("service contract"), the government appoints a private company to perform designated tasks

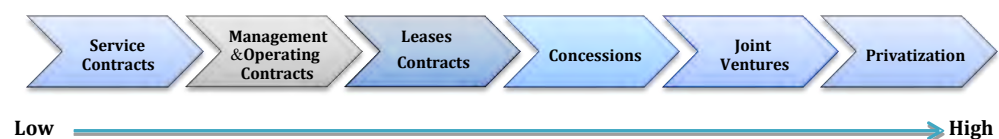


Figure 1. PPP types & extent of private sector interest.

for a period of five to seven years. The public sector remains the main provider of infrastructure services and only outsources part of its operations to the private sector. The private sector must provide services at agreed prices, and usually must meet performance standards set by the public sector. Governments often use competitive bidding procedures to award service contracts. Given the limited duration and narrow definition of these contracts, they often work well (World Bank Group, 2018; Izuwah 2019; Infrastructure Concession Regulatory Commission, 2012).

This arrangement allows public institutions to benefit from the special technical expertise of the private sector, manage issues, and realize cost savings (Oshodi, 2018; World Bank PPI Database, 2018). Under typical PPP arrangements, the public entity pays the private sector a predetermined fee for the service, which could be a one-off fee or based on cost per unit. A typical PPP financing option involves a cost-plus expense formula, where costs items are fixed and the private sector is involved in share of profits (Shi et al., 2019).

Public Private Partnership contracts are noted for increasing efficiency, thus releasing some revenue for other purposes, but the private sector is not obliged to provide funds. Under PPP's private contractors usually have no relationship with the end user, and all financial interactions are conducted with the public sector partner. The public sector partner is responsible for funding additional capital expenditures that may be required for expansion of the project or initiative (Owolabi et al., 2019).

2.1.2. Lease Contracts

In this type of situation, the operator collects tariffs from consumers on behalf of the contracting agency or public sector partner. The contracting agency or public sector partner is usually responsible for major repairs and new basic works. However, the contract stipulates the exact terms and responsibilities for funding and implementing maintenance, repair and project adjustments.

The operator earns the operator's price based on the agreed ratio of production and sales tariffs. The difference between the tariff and this price is paid to the contracting agency. Which can be an asset holding company or an arm of government, based on the project domains or industry institutional framework. According to the World Bank (2019), the choice of lease and lease contract will depend on a lack of availability of private capital or commercial debt for housing developments.

The awarding agency hopes to combine public financing with the efficiency of attracting private individuals, while transferring higher risks to private operators than is the case with management contracts and added incentives for performance. The main difference between leasing and discounting and management contracts is that the operator will not charge a fixed service fee from the awarding institution but will charge the consumer an operator fee. In the case of leasing, the operator would retain the operator's fee from the receipt and pay the licensing agency the additional fee charged to users to make up for the investments in infrastructure by the licensing agency (World Bank, 2019).

2.1.3. Joint Ventures

A joint venture refers to a partnership in which public and private sector partners pool their resources, finances, and expertise under joint management to incentivize long-term growth and mutual benefits. The level of ownership of the shares will vary, depending on whether the public sector is trying to get the project off the balance sheet, or whether the public sector wants to retain management control of the utility company. However, even if the government transfers most of the shares in the entity to the private sector, there are ways to allow the government to control and even have veto power over certain management issues. For strategic reasons, the public sector will usually (at least initially) maintain control of the entity, especially if the joint venture company owns assets. However, the private sector will want to ensure that it can manage entities and will therefore need to have veto power or weighted voting power on sensitive matters (World Bank, 2019).

In a joint venture, the public sector takes the position of regulator, as well as being a shareholder in PPP operating company. From this position, it may share the profits of the operating company and help ensure broad political acceptance from stakeholders of the project. Private sector partners are usually mainly responsible for performing daily management operations. In joint ventures, partners in the public and private sectors must cooperate from the earliest stage. Institutional tools (sometimes called “shadow companies”) or “project development entities” are usually formed during the pre-investment or development phase of the project. This tool provides a forum for direct collaborative dialogue between public and private sector partners when formulating the final project. In a more basic form, this can be a formal working group. Several projects have formed joint ventures, dedicated to the development of projects at this initial stage (Liang et al., 2018).

At its best, joint ventures remain an effective means to take advantage of the unique advantages that emanate from the public and private sectors and provide the private sector with a tool that can help them provide public services at a lower cost without compromising quality or accessibility. In the joint venture model, partners in the public and private sectors accept the idea of sharing risks and mutual rewards; everyone must be willing to make a quantifiable contribution to project development and implementation. For a joint venture PPP to succeed, the goals of the public and private sectors need not be the same. They must only be compatible and lead to common or shared results. For example, one partner may be interested in financial returns, and another may be interested in improving customer service, but they all have the common goal of creating a profitable and sustainable venture. The government must assume the responsibility to ensure that appropriate and affordable infrastructure services are provided to all citizens. Whether they assume the responsibilities of providers, partners or regulators depends on government needs, constraints, and capabilities (Owolabi et al., 2019; Akintoye & Kumaraswamy, 2016).

2.1.4. Concessions

The primary means of PPP's involving private sector investment are typically the design, build, finance, and operate (DBFO) concession agreements. These agreements enable private investment partners to finance, build and operate revenue from improving infrastructure in exchange for the right to receive related revenue within a specific period. Concessions usually last 25 to 30 years, or even longer, and are granted under competitive bidding conditions (Akintoye & Kumaraswamy, 2016).

In accordance with the franchise approach, the ownership of all existing and new assets remains with the public sector. They are responsible for ensuring the proper use and maintenance of assets during the franchise and returning them when they expire (World Bank Group, 2018; Infrastructure Concession Regulatory Commission, 2012). The private sector is represented by the project company, which is usually a consortium of private companies (i.e., promoters) with expertise in designing, constructing, or operating the project. Concessions ensures that private sector operators are responsible for the full delivery of services in the designated area, including system operation, maintenance, collection, management, and system construction and repair. The public sector is responsible for establishing performance standards and ensuring that franchisees meet these standards. In essence, the role of the public sector has changed from being a service provider to regulating the price and quality of services (World Bank, 2019).

The main disadvantages include the contract complexity required to define operator activities. Given that it is difficult to predict events within the typical timeline of 25 - 30 years, the government also needs to improve its regulatory capabilities related to tendering, contract design, and performance monitoring. This shortcoming can be remedied by periodically reviewing certain contract terms in a constantly changing environment (World Bank Group, 2018; Izuwah, 2019; Infrastructure Concession Regulatory Commission, 2012). This financial commitment may be so great that neither the government nor private companies will and will not carry out the project without project financing. In a typical loan, the borrower will use the strength of its balance sheet to borrow from its lender. If the project fails, the borrower will be liable for the entire loan (if it cannot be done, it will face bankruptcy). Private companies or governments generally do not accept this financing risk (Sanda et al., 2017; UNCTAD, 2018).

When necessary, public institutions can share the cost of capital investment. This can be an investment "subsidy" (viability gap financing) to achieve the commercial viability of the concession. Alternatively, a certain percentage of tariffs can be collected to compensate the government for its contribution. The private operator is responsible for all capital and operating costs, including infrastructure, energy, raw materials and maintenance during the contract period. In return, private operators collect tariffs directly from users. Tariffs are usually determined by concession contracts, which also include provisions on how to change same if necessary. In rare cases, the government may choose to provide standby financing to help ensure that the concessionaire can recover its capital expendi-

tures before the contract expires, (World Bank Group, 2018; Izuwah, 2019; Infrastructure Concession Regulatory Commission, 2012).

2.1.5. Build-Operate-Transfer

In a Build-Operate-Transfer or BOT (and its other variants namely Build-Transfer-Operate (BTO), Build-Rehabilitate-Operate-Transfer (BROT), Build-Lease-Transfer (BLT)) type of arrangement, the concessionaire undertakes investments and operates the facility for a fixed period of time after which the ownership reverts back to the public sector. In this type of arrangement, operating and investment risks can be substantially transferred to the concessionaire (Gurara et al., 2017). However, in a BOT type of model the government has explicit and implicit contingent liabilities that may arise due to loan guarantees provided and default of a sub-sovereign government and public or private entity on non-guaranteed loans. By retaining ultimate ownership, the government controls policy and can allocate risks to those parties best suited to bear them or remove them (Hayes et al., 2019).

The concessionaire's revenue in a BOT project comes from managing and marketing of user facilities (for example, toll revenue in a toll road project) and renting of commercial space where possible. Concessions for BOT projects can be structured on either maximum revenue share for a fixed concession period or minimum concession period for a fixed revenue share, a combination of both, or only a minimum concession period (Gao & Zao, 2020). In a BOT concession, the concessionaire may be required to establish a special purpose vehicle (SPV) for implementing and operating the project. The SPV may be formed as a joint venture company with equity participation from multiple private sector parties and the public sector. In addition to equity participation, the government may also provide capital grants or other financial incentives to a BOT project. However, it is also quite common that the government may not have any equity participation in a BOT project company (Shi et al., 2019).

2.2. Institutional Environment and Bankability as an Intervening Variable

A suitable institutional environment can help to reduce conflicts among different stakeholders, decrease opportunistic behaviors, and increase the profit of a PPP, and thus facilitate the involvement of private sector and PPP adoption. Institutional environment is beneficial to the long-term cooperation between the private sector and the government, which plays a critical role in PPP initiation. Based on a qualitative comparative analysis, Soeipto & Verhoest (2018) concluded that a well-developed institutional environment could bolster PPP development. The successful development of PPP depends on a capable, credible, and skilled government, especially in an emerging economy like Nigeria. **Figure 2** below describes the Institutional Environment and Bankability as an Intervening variable in the successful execution of PPP Projects according to Olugbenga et al. (2019); Adamu, Monisola, & Bioku (2016).

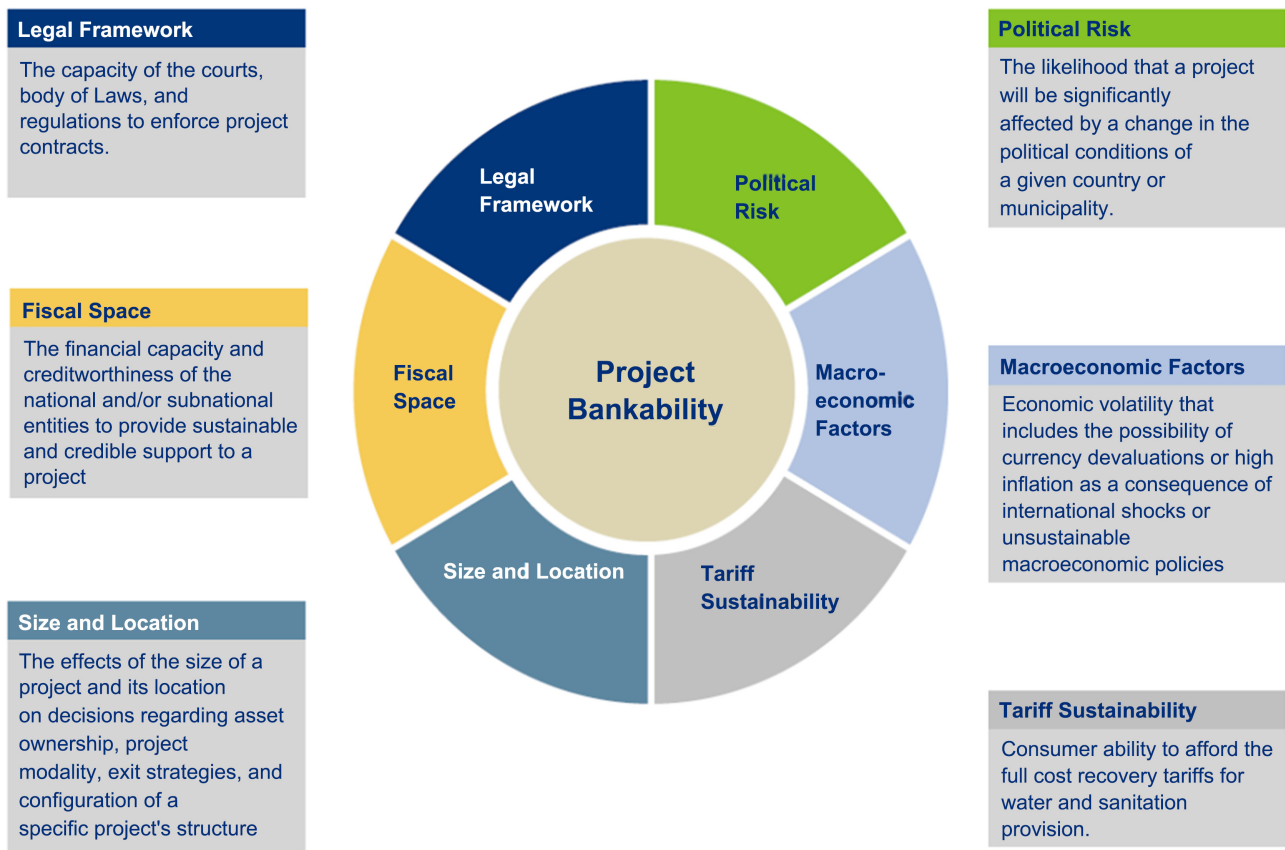


Figure 2. Institutional environment & bankability as an intervening variable.

The higher the government credibility, the lower the risk for investments (Bankability) and information asymmetry, and therefore the higher the willingness of the private sector to invest in PPP. Also, when cooperating with a credible government, private enterprises can have a clear picture of the government's decision and thereby can avoid the opportunistic behaviors of the government, which will reduce the collaboration costs and foster the development of PPPs. According to Babatunde, Perera, & Adeniyi (2019), government capacity, especially fiscal capacity, is essential for successful PPP adoption. The PPP is regarded as a useful tool to alleviate the financial burden and mitigate the debt risk of local governments. As such, governments with a lower fiscal capacity or higher financial burden will be more likely to adopt a PPP to promote rural solid waste management infrastructure construction and operation. Based on a systematic literature review of 186 articles, Wang et al. (2019) concluded that fiscal capacity is a leading factor that contributes to the adoption of PPP. In addition, a favorable investment institutional environment can also promote PPP adoption by encouraging private enterprises to invest in PPP.

2.3. Social Housing or Public Rental Housing

The introduction of social housing or public rental housing in the housing delivery strategy of global governments is an important mechanism that can solve

the housing shortage problem. Social housing or public rental housing refers to affordable housing, which will provide affordable accommodation for low-income people (Mobogunje, 2011). As per the works of Rana & Izuwah (2018) and Izuwah (2019), Housing PPP's provide the foundation and opportunities for extensive cooperation between the private sector and the government on PPP housing projects, because it creates channels for more business and employment opportunities.

The success of the PPP housing project also depends on the country's economy, politics, public acceptance and cultural environment. Izuwah (2019) and Sani et al. (2018) PPP's also face cultural challenges for example, in Nigeria, a cultural custom is to pass on the house as an inheritance to family members rather than transferring it to the government, especially if the ownership (lease) is 25 or 30 years. Most Nigerians are not interested in this PPP housing arrangement.

2.4. Public Private Partnership Financing in Nigeria

Partnership between the public sector and private entities for the financing, design, build, maintenance of infrastructure and delivery of associated services is the preferred means by the Federal Government of Nigeria, of meeting the need for modern and efficient infrastructure, and for reliable cost-effective delivery of public services.

The private sector, both locally and internationally, has a large pool of resources from which they can seek funding, which governments may not have access to, or the capacity to access. For this reason, there has been a marked increase in cooperation between the public and private sectors in the development and operation of infrastructure in a wide range of economic activities in recent times. Governments all over the world, have come to recognize that the collaboration between public and private sectors is crucial to securing dependable and sustainable funding for infrastructure and reducing the pressure on fiscal budgets. PPP arrangements have engendered acceleration of infrastructure provision, faster implementation of projects, and reduced whole life costs of projects (Rana & Izuwah, 2018).

The demand for housing is a function of price, income, affordability, and convenience. The major demand-side problem in Nigeria is affordability and poor access to housing finance by low-income earners in both formal and informal sectors. Therefore, the demand-side solution to housing problem in Nigeria will be one that enhances access to finance for all categories of income earners. This will require an effective and efficient mortgage system that addresses the housing finance needs of those in the formal sector, including organized private sector, as well as home microfinance for the self-employed and low-income individuals in the informal sector. On the other hand, an appropriate PPP model targeted at increasing quantity, improving quality, at low cost, is offered as a supply-side solution.

Indeed, an appropriate framework for PPPs in Nigeria is already in place and

activated and is expected to contribute to addressing the infrastructure deficit and operational constraints. However, the urgency of the need to rebuild some critical and rapidly deteriorating infrastructure makes PPP interesting, but challenging, at least in the near-term. While advocacy for the use of PPP mechanisms as part of the solution for funding of commercially viable infrastructure continues, there is an immediate need to develop other sources, particularly of short- and medium-term funding to respond to the challenge, as PPP mechanisms will only augment FGN's efforts and resources (Rana & Izuwah, 2018). In order to meet the needs of modern and efficient infrastructure and reliable costs, the Nigerian Federal Government has established partnerships between the public sector and private entities for infrastructure financing, design, construction, maintenance and provision of related services.

According to Rana & Izuwah (2018), the Private sector on local and international levels possess resources from which to seek funding, and these sources and resources may not be at the reach of government. Therefore, in recent years, in a wide range of economic activities, cooperation between the public and private sectors in the development and operation of infrastructure has increased significantly. Governments around the world have recognized that cooperation between the public and private sectors is essential to ensure reliable and sustainable funding for infrastructure and to reduce pressure on fiscal budgets, Triveno & Hamilton (2017).

PPP arrangements speed up the provision of infrastructure, speed up the implementation of the project, and reduce the entire life cycle cost of the project. Housing demand is a function of price, income, affordability, and convenience. The main demand-side problem in Nigeria is affordability and the difficulty of obtaining housing financing for low-income people in the formal and informal sectors.

Ahmed & Sipan (2020), Ibem et al. (2018) in their research have noted that, in Nigeria, the demand-side solution for housing will be a solution that enables all income groups to obtain more financing. Adegun & Ibem (2018) further stated that this will require an effective mortgage system to address housing financing needs in the formal sector (including the organized private sector), as well as housing microfinance for self-employed and low-income individuals in the informal sector. On the other hand, a suitable PPP model with the goal of increasing quantity, improving quality and low cost is provided as a supply-side solution. Rana & Izuwah (2018) and Izuwah (2019) in their research noted that Nigeria has established and launched an appropriate framework for PPP, and it is expected to contribute to solving infrastructure shortages and business constraints.

However, there is an urgent need to rebuild some critical and rapidly deteriorating infrastructure, which makes PPP interesting, but at least challenging in the short term (Oosterveer, 2019). While continuing to advocate for the adoption of PPP mechanisms as part of a commercially viable infrastructure financ-

ing solution, there is still urgent need to develop other resources, especially short- and medium-term funding sources to meet challenges as a means of amplifying Governments sources and efforts according to [Olugbenga et al. \(2019\)](#).

2.5. Success Factors and Solutions for PPP Housing Projects

According to [Aduwo et al. \(2017\)](#), there are no doubts that PPP as an effective and efficient housing delivery strategy has been widely accepted in many developing and developed countries around the world. Therefore, in providing a prosperous housing environment for public-private cooperation, the government must make the following preparations:

- 1) Conduct needs assessment to determine the required housing design; how many people need such housing; and the demand for affordable housing shortages in the states and the Federal Capital Territory.
- 2) At the federal level, the review of the management of the Land Use Act is essential for PPP, because the Federal Government does not own land, and does not have any rules regarding freehold land ownership, except for land acquired or granted by Regulations.
- 3) Review the high costs involved in acquiring, transferring, and exchanging land or ownership documents (occupation certificates), and private sector developers are generally discouraged from cooperating with the government for long-term housing plans.
- 4) Provide market incentives to encourage local production of high-quality building materials, thereby reducing costs.
- 5) Invest in vocational training schools to acquire vocational skills in the construction sector; and
- 6) Introduce freehold land or real estate ownership (combined with existing leasehold rights) to strengthen the private sector's strong participation in the housing sector, thereby making land accessible. When determining whether a project is suitable for PPP financing, the following criteria are used:
 - 1) There is an appropriate PPP policy, legal and institutional framework in the sector.
 - 2) Ability to establish exclusive revenue streams from the project.
 - 3) Can bring positive rate of return to investors.
 - 4) The project size is sufficient to justify the additional transaction costs of purchasing as a PPP project; and the ability to appropriately allocate project risks.

2.6. Theoretical Review

The research framework hinges on the New Public Governance Theory (NPG) practices with focus on how guidelines and standards are increasingly co-formulated and co-regulated by government, citizens and non-government players through autonomy and authority sharing to provide public services successfully and efficiently.

According to scholars like [Casady et al. \(2020\)](#), NPG encourages the provision of public service through PPPs based on collaboration and governance led networks to enable actual interaction, horizontal power relations, close organizational relations, trust, reputation, reciprocity, mutual interdependence, and joint decision-making ([McNelis, 2016](#)). Accordingly, PPPs have become an ongoing reconfiguration of authority in the world of politics ([Kavishe & Chilishe, 2020](#)).

This assertion is justified by the current governance and management systems that promote coexistence of institutional, contractual, and informal network structures in which citizens, government, private sector and civil society organizations are given an opportunity to collectively direct and participate in the provision of public services.

This prompts PPP operations to be coordinated within well-networked organizational structures, managerial and institutional strategies that are directed towards the achievement of universally determined service delivery outcomes. In fact, the co-production and co-regulation initiatives advanced by the new public governance approach enable public service stakeholders to exchange information among themselves to have better PPP inventions of solving intricate society problems ([Chan et al., 2020](#)).

New public governance practices appreciate the transformation of public service delivery through a multiple of processes and actors based on both formal and informal interactions ([Kavishe et al., 2019](#)). This enables the development of more networked and citizen focused service delivery approaches that promote self-sustaining initiatives, close shareholder collaborations and continuous improvement practices for the wellbeing and satisfaction of the community ([Oosterveer, 2019](#)).

2.7. Literature Gap

After reviewing past related studies, and on the strength of the previous empirical literature assessed by this study, the researcher observed that existing investigation on the management of public private partnerships for the provision of affordable housing in Nigeria is a topical area which has not been extended to the identified and selected housing organizations.

[Aduwo et al. \(2017\)](#) in his research on “Challenges and opportunities in public-private partnerships (PPP’s) for Housing Low Income Earners in Nigeria” stated that to conduct due diligence, a detailed PPP contract will contain provisions for regular monitoring of the compliance of private partners. By providing a feedback loop between goals and performance that is not shrouded in conflicts of interest, the monitoring and evaluation mechanism helps to improve control.

According to [Dominic et al. \(2016\)](#) and other scholars it is almost standard to expect the private sector to be involved in addressing the housing shortfall through various means including mortgages and strategic partnerships for housing delivery, but this has not been the experience in Nigeria.

According to [Kadiri \(2018\)](#), Nigeria’s earlier attempts to address the housing issues via policy stems from the first national mortgage policy of the 1970’s that

was put forward to establish and provide long-term lending facilities to prospective Nigerians in acquiring their own homes through banks and other mortgage institutions. However, due to these shortcomings, poor structure and lack of clear guidelines, there are gaps in knowledge. This means that the understanding of the problem situation is not sufficient, not to mention the knowledge of the problems and constraints.

Therefore, the knowledge gap is the understanding of the problem situation and context for which affordable Housing PPP's are to be applied or being applied, which is the goal of the research. This research aims to contribute to a better understanding of the problem situation and context. The research will also contribute towards a more robust and comprehensive strategic management framework for the implementation of affordable housing PPP projects, which will help build confidence and thereby encourage investors participation in the delivery of affordable housing PPP's in Nigeria.

3. Methodology

The research adopted a cross-sectional design. Design is believed to be the most appropriate, as in this case no real experiments are performed on people who are the subjects of the study. The design capability is also reflected in the fact that it involved sampling of elements of the population of interest that were measured at a single time point. Survey tools, such as a questionnaire and an interview, were designed to provide meaningful results.

The target group of the study is 10 selected institutions that are responsible and focused on the provision and regulation of housing and housing finance out of a sample population of over 35 institutions operating at the public and private sector levels of the Nigerian economy. The researcher selects 10 public and private sector institutions from the country's capital, Abuja, Nigeria using Judgmental sampling techniques as stated in **Table 1** below. Organizations that have

Table 1. Break down of the sample size.

S/No.	Name of organization	A	Q
1.	Infrastructure Regulatory & Concession Commission (ICRC)	580	58
2.	Nigeria Mortgage Refinance Company (NMRC) & Mortgage Banking Association of Nigeria (MBAN)	500	50
3.	Federal Housing Authority (FHA)	480	48
4.	Federal Mortgage Bank of Nigeria/National Housing Fund (NHF)	450	45
5.	Ministry of Lands, Housing & Urban Development (LHUB)	320	32
6.	Ministry of Budget and National Planning (BNP)	300	30
7.	Nigerian Institute of Building (NIB)	270	27
8.	Federal Capital Territory Administration (FCTA)	240	24
9.	Abuja Metropolitan Management Council (AMMC)	240	24
10.	The Council of Registered Builders of Nigeria (CORBON)	220	22
	Total No. of Respondent	3600	360

been involved in PPP for many years have been identified. The research tool used for the study is a structured questionnaire. A four-point Likert scale format was used to design the questionnaire. The questionnaire was distributed to respondents in selected sectors.

The data were summarized and analyzed using exploratory statistical methods. In addition, the information and opinions provided by the respondents through closed-ended questionnaires, structured interviews and document analysis were considered in the interpretation and analysis of the data by supplementing the data obtained with the questionnaires. Data are presented in tables, with values in frequency and percentage. The research applied Pearson correlation and multiple regression analysis to test the relationship between variables using version 21.0 of the Social Science Statistics Package (SPSS).

3.1. Sample Size Determination

The sample size may be large or small depending on the nature of the population of interest. The actual population of the study is three thousand six hundred (3600). Based on this population, the sample size was determined at 95% level of confidence and 5% error tolerance using Yamane (1967) sample size determination formula. The formula is stated below;

Where n = the sample size.

e = level of significance (proportion of sampling error).

1 = constant value.

N = the finite population size.

The sample size for this study was therefore:

$$n = \frac{N}{1 + Ne^2}$$

$$N = 3600$$

$$n = \frac{3600}{1 + 3600(0.05)^2}$$

$$n = \frac{3600}{1 + 3600(0.0025)}$$

$$n = \frac{3600}{1 + 9}$$

$$n = \frac{3600}{10}$$

$$n = 360$$

This gives a sample size of 360. The designated organizations were properly represented using proportionality formula.

Thus:

$$Q = A/N \times n/1$$

where:

Q = the number of the questionnaire allocated to each selected sector.

A = the population of each selected sector.

N = the total population of all selected sectors.

n = the estimated sample size used in the study.

3.2. Instrument Validity and Reliability

Apart from examining the data collected on distribution and dispersion, the data was also be subjected to validity tests to check whether the instrument tested what it should have tested. Content validity involved the examination of content to determine whether it covered a representative sample of the behavioral domains to be measured. Further, the items or factors within variables were compared to other research factors, covering parameters in question, to ensure that there was consistency.

Validation was done by dividing the instrument into several sections. Each section was carefully checked to ensure that it conveys the necessary message and attracts the relevant feedback, as per the test of specific themes of the research objectives and hypotheses.

The questionnaire distributed were completed and returned. Spearman Rank Order Correlation Coefficient was used to test the reliability of the research instrument, which was found to be high, $P = 0.09879$ showing that there is consistency in the items of the survey. The reliability was calculated as follows and stated in **Table 2**:

$$\rho = 1 - \frac{6 \sum d^2}{n(n^2 - 1)}$$

$$\rho = 1 - \frac{6(2)}{10(10^2 - 1)}$$

$$\rho = 1 - \frac{12}{10(100 - 1)}$$

$$\rho = 1 - \frac{12}{990}$$

$$\rho = 1 - 0.012$$

$$\rho = 0.9879$$

where ρ is correlation coefficient.

4. Data Presentation, Analysis, and Interpretation

This section deals with data presentation, analysis, and interpretation. It covers the analysis of questionnaire distribution, percentages and tables, and test of hypotheses and discussion of results.

Table 3 shows that among the respondents, those who are within the age bracket of 36 - 45 years had the highest responses equivalent of 27.8% followed by those with 26 - 35 years with responses of 26.4%. 46 - 55 had 25%, 22 - 25 years had 13.5% while 56 years and above had 20.

Table 2. Reliability table.

Organization	First average X	Second average Y	Xr	Yr	D	d^2
1	2	2	1	1	0	0
2	2	2	1	1	0	0
3	2	1	1	1	0	0
4	1	2	1	2	1	1
5	1	2	2	2	0	0
6	2	2	2	2	0	0
7	1	1	2	2	0	0
8	1	1	2	2	0	0
9	1	2	1	2	1	1
10	1	2	2	2	0	0
$\Sigma d^2 = 2$						

Source: Field Survey, 2021.

Table 3. Respondents age bracket.

Details	Frequencies	Percentage (%)
22 - 25 Years	38	13.5
26 - 35 Years	74	26.4
36 - 45 Years	78	27.8
46 - 55 Years	70	25
56 years above	20	7.1
Total	280	100

Source: Field Survey Data, 2021.

Table 4 indicates that among the total sum of 360 copies of questionnaires administered to the unit of analysis, only 80 representing 22% could not be retrieved or were missing (*invalid*), while 280 copies were retrieved and valid for analysis representing 78% of the total copies distributed.

4.1. Analysis of the Questionnaire

Table 5 shows that the respondents agreed on each of the items of Lease Contract (i.e. mean scores greater than 3.0). The grand mean is equally greater than 3.0; indicating that Lease contract is has a positive link as a dimension of Public private partnership.

Table 6 indicates that the respondents agreed on each of the items of Build-own operate and transfer policy (i.e., mean scores greater than 3.0). The grand mean is equally greater than 3.0; indicating that Build-own operate and transfer policy has a positive link as a dimension of public private partnership.

Table 4. Questionnaire distribution and retrieval.

Questionnaire	Details	Percentage (%)
Retrieved and usable	280	78
Not Retrieved/Retrieved but not Usable	80	22
Total	360	100

Source: Field Survey Data, 2021.

Table 5. Frequencies on item of “Lease Contracts”.

S/N	Items	SA (5)	A (4)	U (3)	D (2)	SD (1)	Total	Mean	Remark
1	lease contracts have effect on the provision of affordable housing in Nigeria	34 44.2% 136	20 26% 80	20 26% 60	3 3.9% 6	0 0% 0	77 100% 282	3.7	Agree
2	lease contract will depend on a lack of availability of private capital or commercial debt for housing developments	29 37.7% 116	40 33.9% 160	8 10.4% 24	0 0% 0	0 0% 0	77 100% 300	3.9	Agree
3	leases contracts are usually arrangements between the public and private sectors	66 85.7% 264	7 9% 28	4 5.2% 12	0 0% 0	0 0% 0	77 100% 304	3.9	Agree
4	Private leases are a kind of entrusted management contract within the scope of public-private partnerships	44 57.1% 220	20 26% 80	11 19.5% 14.3	2 2.6% 4	0 0% 0	77 100% 319	4.1	
	Total	173 865	87 348	43 129	5 10	0 0	308 1352	4.4	Agree

Source: Field Survey, 2021.

Table 6. Frequencies on item of “Build-own operate and transfer policy”.

S/N	Items	SA (5)	A (4)	U (3)	D (2)	SD (1)	Total	Mean	Remark
1	Build own operate and transfer policy influence the provision of affordable Housing in Nigeria	43 55.8% 215	5 5.5% 20	7 9.1% 21	20 26% 40	2 2.6% 2	77 100% 298	3.9	Agree
2	PPP should be used as a strategic tool since the adoption of PPP models has improved investment climate in Nigeria.	33 42.9% 165	29 37.7% 116	10 13.0% 30	1 1.3% 2	4 5.2% 4	77 100% 317	4.1	Agree
3	Public Private Partnerships (PPP) is an effective tool in finance and resources management in the public sector.	30 39.0% 150	23 30% 92	20 26% 60	2 2.6% 4	2 2.6% 2	77 100% 306	4.0	Agree
4	There is no significant effects of build own operate and transfer policy on the provision of affordable Housing in Nigeria	54 70% 270	23 30.0% 92	0 0% 0	0 0% 0	0 0% 0	77 100% 362	4.7	
	Total	160 800	80 320	37 111	27 54	8 8	308 1293	4.2	Agree

Source: Field Survey, 2021.

4.2. Test of Hypotheses

As specified, the hypotheses were tested using the multiple regression and Pearson moment product correlation.

4.2.1. Hypothesis One

H₀: There is no positive effect of lease contracts on the provision of affordable housing in Nigeria.

H₁: There is positive effect of lease contracts on the provision of affordable housing in Nigeria.

According to the calculations in **Table 7** it is observed that the level of correlation coefficient between lease contracts and provision of affordable housing in Nigeria is equal to 68.5 percent and considering that a significant level is larger than 5%. Then we can say that there is positive relationship between Lease contracts and provision of affordable housing in Nigeria.

From the coefficients in **Table 8**, the p-value was obtained to be 0.685 which is greater than 0.05 (5%). Therefore, we can conclude that there is a significant relationship between the use of Lease contracts and the provision of affordable housing in Nigeria.

Table 7. Table of correlation between lease contracts and provision of affordable housing in Nigeria.

Correlations			
		Lease contracts	Provision of affordable housing in Nigeria.
Lease contracts	Pearson Correlation	1	0.685**
	Sig. (2-tailed)	245	0.000
	N		280
Provision of affordable housing in Nigeria.	Pearson Correlation	0.685**	1
	Sig. (2-tailed)	0.000	245
	N	280	

**Correlation is significant at the 0.01 level (2-tailed).

Table 8. Regression analysis test of lease contracts and provision of affordable housing in Nigeria.

Model Summary					
Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	3.559	0.216	16.464	0.000
	Lease Contracts	0.027	0.067	0.028	0.407

Dependent Variable: Provision of affordable housing in Nigeria.

In summary, based on the foregoing, majority of respondents do support alternate Hypothesis one “There is positive effect of lease contracts on the provision of affordable housing in Nigeria”. Lease contracts had a positive correlation with provision of affordable housing in Nigeria and Hypothesis one which states that “There is positive effect of lease contracts on the provision of affordable housing in Nigeria” is therefore accepted.

4.2.2. Hypothesis Two

H₀: There is no significant effects of build own operate and transfer policy on the provision of affordable Housing in Nigeria.

H₂: There is significant effects of build own operate and transfer policy on the provision of affordable Housing in Nigeria

According to the calculations in **Table 9**, it is observed that the correlation coefficient of Build own operate and transfer and provision of affordable Housing in Nigeria is equal to 73.6% and considering that the significance level is greater than 5%, we can therefore deduce that there is a positive relationship between Build own operate and transfer and provision of affordable housing in Nigeria.

Table 9. Table of correlation between build own operate and transfer and provision of affordable housing in Nigeria.

Correlations			
		Build own operate and transfer	provision of affordable Housing in Nigeria
Build own operate and transfer	Pearson Correlation	1	0.736**
	Sig. (2-tailed)	245	0.002
	N		280
Provision of affordable Housing in Nigeria	Pearson Correlation	0.736 **	1
	Sig. (2-tailed)	0.001	245
	N	280	

**Correlation is significant at the 0.01 level (2-tailed).

Table 10. Regression analysis test of build own operate and transfer and provision of affordable housing in Nigeria.

Model Summary					
Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	2.539	0.447		5.685	0.000
1 Build own operate and Transfer	0.032	0.096	0.023	0.337	0.736

Dependent Variable: Provision of affordable Housing in Nigeria.

From the regression analysis in **Table 10**, the p -value was obtained to be 0.736 which is greater than 0.05 (5%). Therefore, we can conclude that there is a significant relationship between build own operate and transfer and provision of affordable housing in Nigeria. In summary, based on the foregoing, majority of respondents do support the alternate Hypothesis “There is positive effect of build own operate and transfer on the provision of affordable housing in Nigeria”. Build own operate and transfer had a positive correlation with provision of affordable housing in Nigeria and Hypothesis two which states that “There is significant effects of build own operate and transfer policy on the provision of affordable Housing in Nigeria” and is therefore accepted.

5. Summary and Recommendations

In developed and emerging economies, as well as international organizations such as the World Bank and UN-Habitat, see significant potential in using PPPs to tackle inadequate infrastructure and housing; however, the design and implementation of PPPs remains a challenge. Further research will also provide insight into the possible evaluation of partnerships by exploring the criteria against which effectiveness can be assessed. This understanding can ultimately lead to significant improvements in affordable housing collaboration and provision. Organizations partner for several reasons: to achieve certain goals, such as increasing efficiency or stability, gaining power or control over challenges. For a partnership to thrive and achieve these goals, each partnership must set up measures of success, be able to quantify and monitor their performance, and identify and effectively address problems that arise.

This study summarizes important questions raised in the literature and empirical findings that there is potential for PPP's to successfully provide affordable housing; although currently limited by certain local constraints. Considering this, and to reduce the affordable housing gap, Nigeria needs to address existing constraints and prepare for future constraints, focusing on monitoring, ensuring good governance and coordination between relevant institutions and sectors to better understand the problem situation and institutional context for the application of affordable housing PPP's.

Recommendations

In view of the research findings, the researchers would recommend the following:

- 1) For PPPs to be used for environmentally, socially, and economically sustainable development, either within the overall policy framework of PPPs or at the level of the contracting parties at the level of individual projects, good governance and political will are key to successful management.
- 2) In addition, there is a need for cooperation between federal and state governments to facilitate the establishment of local housing trust funds. This can encourage the creation of local, affordable housing partnerships and promote

the development of locally planned affordable housing initiatives.

3) The government must take responsibility for the provision adequate and affordable infrastructure services to all citizens. The importance of housing in terms of affordability and infrastructure varies depending on the perspective examined.

The affordability of a project from a government perspective often indicates whether the project is able to meet government budget constraints. Bielenberg et al. (2016) and other researchers have noted that, from an end-user or supplier perspective, affordability refers to the ability to obtain or pay infrastructure-related charges, and this is a particular problem for low-income groups.

As part of the research recommendations, further study would be needed to evaluate the actual PPP impact on affordable housing delivery. This is the case study assessment of a PPP arrangement in the Nigerian housing sector and would draw out lessons for improving the effectiveness and viability of PPP projects in Nigeria.

The research provides an understanding into the appropriate incentives needed for affordable housing delivery for private sector participation. Future studies should explore in more depth the different incentive mechanisms most appropriate for different housing providers. Issues around the incentive response, how different housing providers would respond to different incentive mechanisms, and approaches to more effective monitoring of partnerships should be examined.

In addition, availability of reliable data about the success or problems of using a PPP approach to increase affordable housing delivery could help practitioners build successful partnerships for the development and management of affordable housing. Finally, further research work can also focus on ESG/Sustainability issues like environmental limitations, Using Special Purpose Vehicles in managing PPP Risk and Financing mechanisms for affordable housing delivery (viability gap funding and impact finance).

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- Adamu, M., Adamu, F. M., & Bioku, J. O. (2016). PPP Bankable Feasibility Study: A Case of Road Infrastructure Development in North-Central Region of Nigeria. *International Journal of Engineering Science Invention*, 5, 8-14.
- Adegun, O., & Ibem, E. (2018). Within Their Reach: Quality Urban Housing for Millions Who Do Not Have Millions. *Housing Studies Journal*, 33, 986-987. <https://doi.org/10.1080/02673037.2018.1482634>
- Aduwo, E. B., Ibem, E., & Edewor, P. (2017). Challenges and Opportunities in Public-Private Partnerships (PPP's) for Housing Low Income Earners in Nigeria. In *Advances in Business and Management* (pp. 145-168). Nova Science Publishers.

<http://eprints.covenantuniversity.edu.ng/8164/1/BOOK.pdf>

- Ahmed, Y., & Sipan, I. A. (2019). Critical Success Factors of Public Private Partnership for Affordable Housing in Nigeria. *International Journal of Recent Technology and Engineering*, 8, 57-69.
- Akintoye, A., & Kumaraswamy, M. (2016). *Public Private Partnerships, Research Road-map-Report for Consultation* (pp. 1-33). CIB General Secretariat.
- Babatunde, S. O., Perera, S., & Adeniyi, O. (2019). Identification of Critical Risks Factors in Public-Private Partnership Project Phases in Developing Countries—A Case of Nigeria. *Benchmarking*, 26, 334-355. <https://doi.org/10.1108/BIJ-01-2017-0008>
- Berawi, M. A. (2019). Public-Private Partnership: Generating Mutual Benefits for Stakeholders. *International Journal of Technology*, 10, 1-4. <https://doi.org/10.14716/ijtech.v10i1.2835>
- Bielenberg, A. et al. (2016). *Financing Change: How to Mobilize Private Sector Financing for Sustainable Infrastructure*. McKinsey Center for Business and Environment.
- Casady, C. B., Eriksson, K., Levitt, R. E., & Richard Scott, W. R. (2020) (Re)defining Public-Private Partnerships (PPPs) in the New Public Governance (NPG) Paradigm: An Institutional Maturity Perspective. *Public Management Review*, 22, 161-183. <https://doi.org/10.1080/14719037.2019.1577909>
- Chan, A. P., Tetteh, M. O., & Nani, G. (2020). Drivers for International Construction Joint Ventures Adoption: A Systematic Literature Review. *International Journal of Construction Management*, 10, 1-13.
- Dominic, C. M. et al. (2016). A Review of Public Private Partnership on Some Development Projects in Nigeria. *International Journal of Application or Innovation in Engineering & Management (IJAIEM)*, 4, 64-75.
- Gao, L., & Zhao, Z. Y. (2020). The Evolutionary Game of Stakeholders' Coordination Mechanism of New Energy Power Construction PPP Project: A China Case. *Sustainability (Switzerland)*, 12, Article No. 1045. <https://doi.org/10.3390/su12031045>
- Gurara, D., Klyuev, V., Mwase, N., Presbitero, A. F., Xu, C. X., & Bannister, G. F. (2017). *Trends and Challenges in Infrastructure Investment in Low-Income Developing Countries*. International Monetary Fund (IMF Working Papers). <https://doi.org/10.2139/ssrn.3079560>
- Hayes, S., Desha, C., & Gibbs, M. (2019). Findings of Case-Study Analysis: System-Level Biomimicry in Built-Environment Design. *Biomimetics*, 4, 73. <https://doi.org/10.3390/biomimetics4040073>
- Ibem, E., Onyemachi, P. C., & Yo-Vaughan, E. A. (2018). Project Selection and Transparency Factors in Housing Public Private Partnerships in Nigeria. *Construction Economics and Building*, 18, 15-40. <https://doi.org/10.5130/AJCEB.v18i2.5771>
- Infrastructure Concession Regulatory Commission (2012). *PPP Manual for Nigeria*.
- Izuwah, C. K. (2019). *Unlocking the Potentials in the Housing Market through Public Private Partnerships (PPP) Investment Model* (Volume 57). Central Bank of Nigeria Economic & Financial Review.
- Kadiri, S. (2018). *Nigeria and the Lack of Affordable Housing*. Stears Business Research Publication. <https://www.stearsng.com/article/nigeria-and-the-lack-of-affordable-housing>
- Kavishe, N. et al. (2019). Evaluating Issues and Outcomes Associated with Public-Private Partnership Housing Project Delivery: Tanzanian Practitioners' Preliminary Observations. *International Journal of Construction Management*, 19, 354-369. <https://doi.org/10.1080/15623599.2018.1435154>

- Kavishe, N., & Chileshe, N. (2020). Driving Forces for Adopting Public-Private Partnerships in Tanzanian Housing Projects. *International Journal of Construction Management*, 20, 912-927. <https://doi.org/10.1080/15623599.2018.1502931>
- Liang, R., Wu, C., Sheng, Z., & Wang, X. (2018). Multi-Criterion Two-Sided Matching of Public-Private Partnership Infrastructure Projects: Criteria and Methods. *Sustainability*, 10, Article No. 1178. <https://doi.org/10.3390/su10041178>
- McNelis, S. (2016). Researching Housing in a Global Context: New Directions in Some Critical Issues. *Housing, Theory and Society*, 33, 403-423. <https://doi.org/10.1080/14036096.2016.1167121>
- Mobogunje, A. L. (2011). *Land Reform in Nigeria: Progress, Problems & Prospects*. Publication of the Presidential Technical Committee for Land Reform, Nigerian Federal Government.
- Olugbenga, T. D. et al. (2019). Unleashing the Potentials of Housing Sector in Nigeria as Perceived by Users. *International Journal of Built Environment and Sustainability*, 4, 172-179. <http://www.ijbes.utm.my>
<https://doi.org/10.11113/ijbes.v4.n3.210>
- Oosterveer, P. (2019). *Is Co-Living an Answer to the Affordable Housing Crisis?* <https://www.weforum.org/agenda/2019/05/co-living-answer-affordable-housing-crisis>
- Oshodi, B. A. (2018). *Effectiveness of Public Private Partnership Models on Housing Delivery: A Study of Three Selected Housing Agencies in Lagos State, Nigeria*.
- Owolabi, H. A., Oyedele, L., Alaka, H., Ebohon, O. J., Ajayi, S., Akinade, O., Bilal, M., & Olawale, O. (2019). Public Private Partnerships (PPP) in the Developing World: Mitigating Financiers' Risks. *World Journal of Science, Technology and Sustainable Development*, 16, 121-141. <https://doi.org/10.1108/WJSTSD-05-2018-0043>
- Rana, F., & Izuwah, C. (2018). *Infrastructure & Africa's Development—The PPP Imperative*. World Bank's Infrastructure and Public Private Partnership Publication.
- Sanda, Y. N., Anigbogu, N. A., & Daniel, M. M. (2017). An Assessment of Public Private Partnerships for Housing Projects in Bauchi State, North Eastern Nigeria. *International Journal of Regional Development*, 4, 35-50.
- Sani, M., Abdulkadir, S., & Ahmed, S. U. (2018). Public Private Partnership Housing Projects Implementation in Bauchi State, Nigeria. *International Journal of Research in Engineering and Innovation (IJREI)*, 2, 93-96.
- Shi, J. et al. (2019). Investment Valuation Model of Public Rental Housing PPP Project for Private Sector: A Real Option Perspective. *Sustainability*, 11, Article No. 1857. <https://doi.org/10.3390/su11071857>
<https://www.mdpi.com/journal/sustainability>
- Soecipto, R. M., & Verhoest, K. (2018). Contract Stability in European Road Infrastructure PPPs: How Does Governmental PPP Support Contribute to Preventing Contract Renegotiation? *Public Management Review*, 20, 1145-1164. <https://doi.org/10.1080/14719037.2018.1428414>
- Triveno, L., & Hamilton, E. (2017). *Three Misconceptions in the Way of Better Housing Policies*. World Bank's Building Sustainable Communities Research Publication.
- UNCTAD (2018). *World Investment Report: Investing in the SDGs: An Action Plan*. United Nations Research Publication.
- Wang, L., Zhou, L., Xiong, Y., & Yan, D. (2019). Effect of Promotion Pressure and Financial Burden on Investment in Public-Private Partnership Infrastructure Projects in China. *Asian-Pacific Economic Literature*, 33, 128-142. <https://doi.org/10.1111/apel.12271>
- World Bank (2019). *World Development Report. Development and Climate Change*.

World Bank.

World Bank Group (2018). *Atlas of Sustainable Development Goals*. Research Publication under World Development Indicators by the World Bank Group.

World Bank PPI Database (2018). *Private Participation in Infrastructure Database*.

Yamane, T. (1967). *Statistics an Introductory Analysis* (2nd ed.). Harper and Row.