THE FACTOR ANALYSIS OF ECONOMIC SUSTAINABILITY OF PUBLIC-PRIVATE PARTNERSHIPS HOUSING IN OGUN STATE: USERS' SATISFACTION PERSPECTIVE.

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Abstract
Public-private partnerships (PPPs) have emerged as a significant approach to housing delivery, with the potential to promote economic sustainability. The economic sustainability of PPP housing projects is crucial as it encompasses the long-term viability and positive economic impacts generated by such collaborations. Thus, the PPP housing strategy was examined in this paper to evaluate economic sustainability among Ogun State dwellers and the extent to which dwellers of such buildings are satisfied. A quantitative research method was adopted to approach the study using a survey. Data was gathered from 1,186 residents of housing constructed through PPP by administering a structured questionnaire, where 75 % (885) of the responses were valid. Descriptive and inferential analyses were used to analyze the data. The descriptive part consists of the mean response score of the economic sustainability factors while principal component analysis was adopted to make inferences. Findings indicates that the PPP housing units delivered in the state are sustainably economical, as the buildings are of low-cost value and the level of satisfaction derived from them is moderate. This implies that despite the challenges that may be experienced in the course of housing delivery through PPP, the method can be viewed to be one of the best methods. Thus, governments are encouraged to use the PPP approach for housing delivery by creating a level-playing ground for the masses as a beneficiaries of the housing scheme.

***Keywords**: Dwellers, Economic sustainability, Housing, Public-Private Partnerships, Users' satisfaction*

Introduction

Affordable housing is a critical determinant of economic sustainability. Individuals and families can better utilize their financial resources when they live in affordable housing, freeing up funds for other vital needs and investments (Turner, 2018). Individuals may struggle to meet other fundamental necessities and incur financial stress when housing expenses are high or inconsistent, reducing their ability to participate fully in economic activities (Saiz, 2010). Furthermore, inexpensive housing allows people to reside closer to jobs, lowering commute costs and increasing labour market efficiency (Glaeser & Gyourko, 2005). Inadequate or unaffordable housing, on the other hand, can contribute to economic insecurity and inequality. Housing expenditures that absorb a considerable amount of household income might impede wealth building, diminish discretionary spending, and limit economic mobility (Harvard University Joint Centre for Housing Studies, 2020). Inadequate housing circumstances, such as overcrowding and poor infrastructure, can also harm health, productivity, and educational performance, especially for marginalised people (Desmond, 2016; WHO, 2011).

Public-Private Partnerships in housing delivery help to ensure economic sustainability by combining the knowledge, resources, and efficiency of the public and private sectors. PPPs also assist the development of affordable housing units, encourage job creation, and stimulate local economies by pooling their capabilities (Van den Hurk et al., 2020). Private-sector partners contribute knowledge in project management, innovation, and funding, which can result in cost-effective and efficient housing solutions (World Bank, 2019). This increased investment in housing infrastructure has the potential to have a multiplier effect on the local economy by creating job opportunities, stimulating local enterprises, and promoting sustainable urban growth (Risafi et al., 2020).

The economic sustainability of PPP housing developments is a key problem that necessitates additional research and policy consideration. Post-occupancy review of PPP housing delivered in Ogun State, taking into account its economic sustainability for attaining sustainable development goals, cannot be swept under the carpet by examining the potential benefits and limitations of PPPs in promoting sustainable housing.

Ahuja and Ravindranath (2015) investigates the economic sustainability considerations in public-private partnerships, including housing. It addresses the economic benefits of public-private partnerships, such as cost savings, increased efficiency, and higher private investment. To ensure the economic sustainability of PPP housing projects, the study emphasizes the necessity of examining economic viability, risk allocation, and value for money.

Ge and Zhang (2017) examines the economic viability of PPP housing developments using a life cycle costing technique. It assesses the costs and benefits of a project throughout its whole life cycle and finds significant elements determining economic sustainability. The study emphasizes the importance of precise cost estimation, risk management, and long-term financial planning in PPP housing ventures to attain economic sustainability.

Infrascope (2019) investigates the role of public-private partnerships in unlocking public-private investment in housing. It investigates the economic sustainability of public-private partnerships in housing, including their impact on job creation, local economies, and investment attraction. The study gives insights into best practices and policy recommendations for promoting economic sustainability in public-private partnerships (PPP) housing projects. Medda and Pels (2016) analyses the economic viability of public-private partnerships in urban infrastructure, including housing. It investigates the economic benefits of PPPs, such as cost savings, risk sharing, and private-sector innovation. To achieve economic sustainability in PPP housing projects, the authors emphasize the significance of proper financial models, good risk management, and robust governance structures.

Noh and Kim (2017) studied the elements that influence the economic feasibility of PPP projects, with a focus on the housing industry. It identifies critical economic sustainability elements such as financial viability, risk allocation, and cost-effectiveness. To ensure the economic viability of PPP housing initiatives, the study emphasizes the importance of performing extensive feasibility studies and implementing robust financial analysis.

Hasan and Wang (2019) looked into the contribution of institutional quality to the financial viability of public-private partnerships for affordable housing. It looked at how institutional elements including legal systems, safeguards for property rights, and degrees of corruption affect the financial success of PPP housing projects. Strong institutions are important in luring private investment, maintaining financial viability, and fostering long-term economic sustainability, according to the study.

Olawunmi and Oloyede (2019) also looked at the function of public-private partnerships (PPPs) in the provision of housing in Nigeria. The article focused on the financial viability of PPP housing projects, including how they affected job creation, regional economic growth, and the draw of investment. The study emphasises how PPPs could help reduce the housing shortage and promote economic growth in Nigeria.

An article from Osabutey and Aigbavboa (2020) focuses on the function of public-private partnerships (PPPs) in the provision of affordable housing in South Africa. It looks at the long-term viability of PPP housing projects, including how they affect regional economies, create jobs, and draw in capital. In addition to highlighting the significance of efficient project governance and financial sustainability, the paper explores the prospects and obstacles of adopting PPPs in the South African housing sector. Sibandze (2018) examined the potential for public-private partnerships (PPPs) in the provision of housing in Swaziland. The economic sustainability of PPP housing projects, including their impact on job creation, local economic development, and investment attraction was examined, where the research highlights the potential benefits and challenges of implementing PPPs in the Swazi housing sector and emphasizes the importance of effective collaboration between the public and private sectors.

Sibanda and Sibanda (2018) looked at Zimbabwe's public-private partnerships (PPPs) for housing and how they can support the country's economic growth. It talks about the financial viability of PPP housing projects and how they affect attracting investments, job growth, and local economic development. The report emphasises the necessity for efficient project governance and financial viability while analysing the prospects and constraints of adopting PPPs in the Zimbabwean housing industry. More specifically, the World Bank (2019) paper examines

the function of PPPs in housing finance and their potential to maximise funding for urban infrastructure development. It talks about how PPP housing developments can boost the economy by utilising private sector resources, luring investors, and delivering services at a reasonable cost. The report provides insights into policy recommendations and case studies that demonstrate the economic sustainability of PPP housing initiatives.

Methodology

The survey research design was adopted for this study. This was a result of the post-occupancy evaluation done on the PPP housing by the dwellers through a structured questionnaire, highlighting the economic factors of sustainable PPP housing in the state.

A total population of 6500 PPP housing units were altogether constructed by the Ministry of Housing (MOH), Ogun State Housing Corporation (OSHC) and Gateway City Development Company Limited (GCDCL). The housing units were located throughout the state's nine (9) local government areas. Table 1 shows the Local Government Area and housing scheme in each Local Government. This information was obtained from the Ogun State Ministry of Housing in Abeokuta, Nigeria. So far, thirteen (13) PPP housing estates have been identified, from which the population and number of housing units have been calculated.

Table 1: Distribution of the study population per Local Government where PPP Housing Projects were domiciled

S/N	LocalGovtAreas	Housing Scheme	No. of Housing Unit
1	AbeokutaNorth	MOH	50
2	AbeokutaSouth	OSHC	300
		MOH	300
		GCDCL	340
3	Obafemi-Owode	GCDCL	300
		MOH	500
4	Odeda	MOH	300
5	Ado-Odo/Ota	MOH	350
		MOH	300
6	Ifo	MOH	350
7	Sagamu	GCDCL	160
8	Ikenne	MOH	250
9	OgunWaterside	MOH	3000
	Total		**6500**

Source: *Ministry of Housing, Ogun State 2021*

A multi-stage sampling strategy was used in the investigation. The sample selection in this study is divided into two parts due to the use of multi-stage sampling. The first stage involved selecting the local government areas that would participate in the survey, while the second stage involved selecting the respondents. Following that, a modified Cochran's (2017) sample size calculator was used to calculate scientifically the optimal sample size of 1186 at a 98% confidence level, 0.02 margin of error, and proportion = 0.5 of the dwelling units. Cochran's formula and sample size from a large population is as follows:

As a result, the updated sample size from the population of 6,500 is as follows:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}} = \frac{1450}{1 + \frac{(1450 - 1)}{6500}} = 1185.68 \approx 1186$$

Hence, a sample size of 1,186 housing units was included in the sample. However, 885 of the research questionnaire representing 75% was duly filled and returned for statistical analysis.

We applied a combination of both descriptive and inferential methods of data analysis in analyzing the data collected using the research questionnaire. The descriptive part of the analysis consists of the weighted average method.

Principal Component Analysis

Principal component analysis is a multivariate statistical method used to represent variability among observed variables in terms of fewer unobserved variables known as factors, according to Ojo and Ogunnusi (2022). A construct of interest could be validated using principal component analysis. The primary goal of the principal component analysis is twofold. It is used for data reduction first, and then for detecting structure (underlying dimensions) in a set of variables. According to Leech et al. (2005), the decision on which factor to keep is influenced by the percentage of variance accounted for by the variable, the absolute variance accounted for by each factor, and if the factor can be meaningfully understood. Typically, factors with Eigenvalues greater than one are kept.

Let the random variables $X_1, \ldots, X_p$ of be a multivariate distribution having average vector μ and a finite covariance matrix $\sum$ with its rank r ≤ p with q, the largest root $\lambda_1 > \cdots \lambda_q$ of distinct $\sum$. A sample of N-independent observation vectors was taken from this population. The observations can be represented as a standard N x p data matrix presented in (1)

$$X = \begin{pmatrix} x_{11} & \cdots & x_{1p} \\ \vdots & \ddots & \vdots \\ x_{Np} & \cdots & x_{Np} \end{pmatrix} \quad (1)$$

Each x_{ij} is translated to a standard score to calculate dependence.

$$Z_{ij} = \frac{x_{ij} - \bar{x}_j}{s_j} \quad (2)$$

Matrix of Sample Covariance

The linear transformation's first principal component of the observation X is estimated a s:

$$z_1 \equiv a_1^T X = \sum_{i=1}^{p} a_{i1} x_i \quad (3)$$

Where the $a_1 = (a_{11}, a_{21}, \ldots, a_{p1})$ is selected such that $var(z_1)$ is maximal

As a result, the sample's Kth PC through linear transformation is presented as

$$z_k \equiv a_k^T X \quad (4)$$

Where; $k = 1, \ldots p$

$a_k = (a_{1k}, a_{2k}, \ldots, a_{pk})$ is selected such that $var(z_1)$ is maximum.

Subject to $cov(z_k, z_1) = 0$ for k > 1 ≥1

And to $a_k^T a_k = 1$

Also, note that to find a_1

$$var(z_1) = [z_1^2] - [z_1]^2 = \sum_{i,j=1}^{p} a_{i1} a_{j1} [x_i][x_j] = \sum_{i,j=1}^{p} a_{i1} a_{j1} S_{ij} \quad (5)$$

Where

$$S_{ij} \equiv \sigma_{x_i x_j} = (x_i x_j) - (x_i)(x_j) = a_k^T S_{a1} \quad (6)$$

S represents the variables' covariance matrix. $x = (x_1, \ldots, x_p)$

To estimate the corresponding eigenvector a_1 by letting λ be a Lagrange multiplier, we maximize $var(z_1)$ subject to $a_k^T a_1 = 1$

i.e. maximize $a_k^T S_{a1} - \lambda(a_k^T a_1 - 1)$

by differentiating $S_{a1} - \lambda a_1 = 0 \Longrightarrow (S - \lambda I_p)a_1 = 0$

Therefore, a_1 is an eigenvector of S corresponding to eigenvalue? $\lambda \equiv \lambda_1$

Therefore, λ_1 is the largest eigenvalue of S

As a result, z_1 preserves the most variety in the sample.

Generally,

$$Y_{ij} = \beta_{i1} X_{1j} + \beta_{i2} X_{2j} + \cdots + \beta_{ip} X_{pj} = a_1' x \quad (7)$$

Of the response with sample variance

$$S_{Y_1}^2 = \sum_{i=1}^{p} \sum_{j=1}^{p} a_{i1} a_{j1} S_{ij} = a_1' S \quad (8)$$

Factor Loadings

Factor rotation refers to a transformation of the factor loadings and the resulting transformation of the factors. In many circumstances, all factor loadings obtained from starting loadings via an orthogonal transformation are difficult to interpret. To produce a simpler structure, it is standard practice to rotate them in some fashion. In reality, it is always preferable to have a loading pattern in which each variable is heavily loaded on a single component while having low loadings on the remaining factors. In m-dimensional space, this transformation rotates the common factors. Furthermore, there are numerous methods for performing factor analysis; nevertheless, factor rotation utilising the VARIMAX method is adopted in this study.

Let the rotating factor loadings matrix be identified by $L^* = [I_{ij}^*]$ and c_i^2 representing the i[th] commonality, then

$$\widetilde{L_{ij}} = {}^{I_{ij}^*}/_{c_i} \quad (14)$$

In terms of square root commonalities, (14) is defined as the rotated coefficient. If P is '$m\ x\ m$' orthogonal matrix with that $L^* = LP$ and $F^* = P'F$, then P is selected to maximise V as defined by:

is defined as the rotated coefficient in terms of square root commonalities. If P is an '$m\ x\ m$' orthogonal matrix such that $L^* = LP$ and $F^* = P'F$, then the matrix P is chosen to maximize the V as defined by:

$$V = \frac{1}{k} \sum_{j=1}^{m} \left[\sum_{i=1}^{k} (I_{ij}^*)^4 - \frac{1}{k} \left(\sum_{i=1}^{k} I_{ij}^{*2} \right) \right] \quad (15)$$

The squares of the loadings are as evenly distributed over each variable as possible when the value of 'V' is maximised. Finding clusters of extremely large and extremely small coefficients in any column of the rotated matrix of factor loadings makes it easier to interpret common factors.

Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity test of Sampling Adequacy

Two tests—Bartlett's sphericity test and the Kaiser-Meyer-Olkin (KMO) test—are used to determine whether a sample is adequate. The KMO statistic is a measure of proportional variance between variables that may share similar variance; it ranges from zero to one, with zero being insufficient and close to one being sufficient. KMO statistics are provided as:

$$MO_j = \frac{\sum_{i \neq j} r_{ij}^2}{\sum_{i \neq j} r_{ij}^2 + \sum_{i \neq j} u} \quad (9)$$

where:

R = [r_{ij}] represent the correlation matrix

$u = [u_{ij}]$ is the partial covariance matrix

$\sum$ = summation notation

The identity matrix (off-diagonal is zero) and the observed correlation matrix are compared using Bartlett's test. If they are comparable, there will need to be an equal number of factors and variables, rendering the analysis worthless. Overall, Bartlett's sphericity test results with p 0.05 and KMO values greater than 0.50 are regarded as satisfactory.

Results and discussion

Table 1: Economic Factors Descriptive Statistics

s/n	Economic factors	MS	SD	Remark
EFI	The nearness of your house to religion/worship locations	3.36	1.221	N
EF2	The nearness of your house to schools for children	3.82	1.075	S
EF3	The nearness of your house to the market/shopping centres	3.65	1.099	S
EF4	Getting value for your money	3.39	1.109	N
EF5	The cost and effort needed to keep the house up	3.74	1.056	S
EF6	The nearness of your house to recreational facilities	3.78	1.281	S
EF7	The nearness of your house to your workplace	3.80	.897	S
EF8	Low-cost maintenance of features in your house	3.60	1.093	S
EF9	Cost of the Building	4.07	.911	S
EF10	The nearness of your house to the police station	3.52	1.096	S
	Grand mean	**3.67**		S

***EF** = Economic Factor; Weighted Averages: Strongly Satisfactory (SS) = 4.5-5.0; Satisfactory (S)= 3.50-4.4; Neutral (N) = 2.5-3.4; Not Satisfactory (NS) = 1.5-2.4; Strongly not satisfactory (SNS)= <1.5; MS = Mean score; SD = Standard Deviation*

***Source**: Researcher's Self-Computation, 2023*

Descriptive statistics of the economic factors influencing PPP housing projects can be evidenced in Table 1. These economic factors were rated on five points Likert scale ranging from strongly satisfactory, satisfactory, neutral, not satisfactory and strongly not satisfactory. The mean response score (MS) and associated standard deviation (SD) are between 4.07 to 3.38 and 0.911 to 1.221. The result indicated from item 1 with MS of 3.36 that dwellers of the PPP housing were neutral on the fact that their resident is in nearness to their religion/worship locations, but satisfied on the mean score of 3.82 that their house of 3.6s is nearer to their children schools. In addition, items 3-10 of the table indicated that the majority of the participants on mean scores of 3.65, 3.74, 3.78, 3.80, 3.60, 4.07, and 3.52 were satisfied with the nearness of their house-to-market/shopping centres, cost and effort needed to keep the house up, nearness of their house to recreational facilities, to workplace, low-cost of maintenance of features in their house, cost of building and nearness of their house to police station respectively. Participants are neither satisfied nor dissatisfied that they got value for their money as shown from the mean response score of 3.39, indicating their level of neutrality. Overall, the grand mean score of 3.67 implies that the satisfactory level of the participants in terms of the economic factors influencing PPP housing projects in Ogun State is moderate, implying that to some greater extent, economic-wise, the PPP housing projects domiciled in the study area are satisfactory. However, confirmatory analysis of the analysed table can be evidenced in the principal component analysis approach. This approach factors out the most prominent economic factors influencing the PPP-delivered housing projects.

3.1 Sampling Adequacy and Sphericity Measure

Table 2: Kaiser-Meyer-Olkin (KMO) and Bartlett's Test

Factors	KMO Measure of Sampling Adequacy	Bartlett's Test	
		Chi-square	p-value

Economic factors	0.668	1744.602 [45]	0.000

Figures in parentheses [ ] represent the degree of freedom (*df*)

The suitability of the sub-variables of the identified factors for principal component analysis was fine-tuned using the Kaiser-Meyer-Olkin (KMO) sampling adequacy and Bartlett's test of sphericity in Table 2. Coefficients ranging between 0.668 and 0.722 for the trio variables indicated that the inter-relationships of the sub-variables were averagely adequate and are of good precision. However, the Chi-square values of Bartlett's test of sphericity with varying degrees of freedom indicated from the p-values < 0.05 that it is reasonable to consider applying a dimension-reduction techniques to the aforementioned variables as the variables are from the multivariate normal distribution (MVN~(μ,$\sum$) and that the correlation coefficients are significant, implying linear relationship among the PPP housing economic factor variables.

Table 3 Correlations matrix of economic factors influencing PPP housing projects

Economic factors		1	2	3	4	5	6	7	8	9	10
The nearness of your house to religion/worship locations	r	1									
	p-value										
The nearness of your house to schools for children	r	.102**	1								
	p-value	.002									
The nearness of your house to the market/shopping centres	r	.153**	.209**	1							
	p-value	.000	.000								
Getting value for your money	r	.226**	.245**	.178**	1						
	p-value	.000	.000	.000							
The cost and effort needed to keep the house up	r	.216**	.242**	.223**	.245**	1					
	p-value	.000	.000	.000	.000						
The nearness of your house to recreational facilities	r	.210**	.485**	.028	.078*	.265**	1				
	p-value	.000	.000	.410	.020	.000					
The nearness of your house to your workplace	r	.309**	.061	.381**	.353**	.293**	.034	1			
	p-value	.000	.068	.000	.000	.006	.315				
Low-cost maintenance of features in your house	r	.635**	.171**	.201**	.345**	.148**	.108**	.305**	1		
	p-value	.000	.000	.000	.000	.000	.001	.000			
Cost of the Building	r	.248**	.390**	.028	.133**	.284**	.221**	.188**	.178**	1	
	p-value	.000	.000	.406	.000	.000	.000	.000	.000		
The nearness of your house to the police station	r	.125**	.253**	.538**	.033	.155**	.119**	.238**	.224**	.124**	1
	p-value	.000	.000	.000	.324	.000	.000	.000	.000	.000	

[1]Nearness of your house to religion / worship locations; [2]Nearness of your house to schools for children; [3]Nearness of your house to market/shopping centres; [4]Getting value for your money; [5]The cost and effort needed to keep the house up; [6]Nearness of your house to recreational facilities; [7]Nearness of your house to your workplace; [8]Low-cost of maintenance of features in your house; [9]Cost of the Building; [10]Nearness of your house to police station

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

*. Correlation is significant at the 0.05 level (2-tailed).

From the examination of the correlation matrix in Table 3, it can be seen that the majority of the identified economic factors were statistically and significantly related as inferred from the p-values < 0.05. Norman and Streiner (2003) opined that it is a waste of time carrying on principal component analysis if fewer correlation coefficients are less than 0.3 as such problems do not surface in this research.

Table 4: Total Variance Explained Based on Economic Factors

Component	Extraction Sums of Squared Loadings		
	Total	**% of Variance**	**Cumulative %**
1	2.861	28.613	28.613
2	1.331	13.313	41.926
3	1.318	13.180	55.106

Source: Researchers' self-computation, 2023

The Eigenvalues and corresponding proportion of variation are taken into account to find similar movement patterns in each PC. Table 4.8 presents the findings of the component analysis. Three major components with Eigen values greater than 1 explained 55.1% of the variation. About 28.6% of the overall variance can be explained by the first component. About 13.3% of the total variance can be attributed to the second component, and 13.2% to the third. It was discovered that the first component had the most variance, followed by the second, with the other components showing a similar pattern towards declining variance.

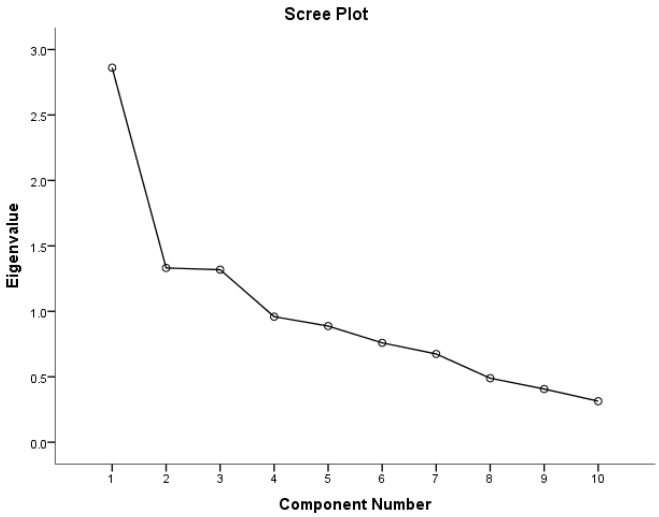

Fig. 1: Scree plot of the ordered eigenvalue of economic factors of PPP housing delivered

Graphical representation of the ordered eigenvalues also showed that three components with ordered eigenvalues greater than 1 are considered in identifying the economic factors influencing the PPP housing projects in Ogun State.

Table 5: Communalities and Component Matrix of Economic Factors for the Sustainability of PPP housing projects

Dimensions	h^2	PC1	PC2	PC3
The nearness of your house to religion/worship locations	**.715**	**.652**	-.300	-.447
The nearness of your house to schools for children	**.531**	.523	-.003	**.507**
The nearness of your house to the market/shopping centres	**.763**	.514	**.705**	.031
Getting value for your money	.287	.493	-.188	-.093
The cost and effort needed to keep the house up	.439	.525	-.128	.382
The nearness of your house to recreational facilities	.377	.373	-.299	.385

The nearness of your house to your workplace	.402	.485	.075	-.402
Low-cost maintenance of features in your house	**.731**	**.674**	-.162	-.500
Cost of the Building	**.520**	**.514**	-.347	.368
The nearness of your house to the police station	**.746**	.534	**.671**	.103

h^2(Communalities) represents the proportion of the variance of each variable that can be explained by the principal components

***Source*: Researcher's Self-Computation, 2023**

Table 5 revealed that component 1 is highly correlated with three (3) original variables of the nearness of the resident's house to religion/worship locations, cost of the building and low cost of maintenance of features in their houses. Component 2 is also correlated with two original economic variables such as the nearness of the resident's house to market/shopping centres and police station respectively while component 3 is also moderately correlated with the nearness of the resident's house to schools for children. Therefore, all three constructed PCs are statistically significant as they contain 55.5% of the total variation. Hence, the six identified original variables were found to be the major economic factors influencing the PPP housing projects in Ogun State, Nigeria. The results corroborate the findings of Sibanda and Sibanda (2018) who researched Zimbabwe's public-private partnerships (PPPs) for housing and how they can support the country's economic growth. Their findings emphasize the financial viability of PPP housing projects and how they affect attracting investments, job growth, and local economic development. The necessity for efficient project governance and financial viability while analysing the prospects and constraints of adopting PPPs in the Zimbabwean housing industry were also emphasized.

Conclusion

PPP housing has the potential to contribute to economic sustainability in a variety of ways. PPP housing projects in the state, for example, have the potential to improve economic sustainability by utilising the capabilities of both sectors, attracting private investment, and adopting sustainability principles that end-users may enjoy. However, careful planning, good governance, and thorough financial analysis are required to ensure PPP housing projects' long-term economic viability among their users. As a result, a detailed evaluation of each PPP housing project is required to determine its economic viability. Furthermore, sustainability is a multidimensional notion that includes social and environmental components in addition to economic factors.

The study concludes that PPP housing projects provided in Ogun State are economically sustainable, and residents express a high level of satisfaction in this regard. This means that, notwithstanding any difficulties encountered during the delivery of homes through PPP, the technique may be regarded as one of the best. As a result, governments are urged to employ the PPP model for housing delivery. The economic sustainability of PPP housing delivery can be improved if projects are conceived, implemented, and managed utilising sustainable ideas and practices. However, the unique economic viability of a housing project is dependent on several elements that must be carefully analysed and evaluated.

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