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RESEARCH ARTICLE

Evaluating the Factors Affecting Sustainable Land Accessibility for Real-Estate Development in Benin City, Nigeria

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ABSTRACT

Access to land, apart from being a fundamental human right, is also a core objective of the Sustainable Development Goals (SDGs) of the United Nations. Achieving this right appears to have defied all sustainable strategies, making the provision of adequate and affordable housing a herculean task, thus putting it out of reach for poor and middle-income households. This survey-based study evaluates the factors affecting effective and sustainable access to land for real-estate development in Benin City, Nigeria. Using a cross-sectional survey design, the study adopted random and purposive sampling techniques, with a well-structured 5-point Likert questionnaire to sample 236 respondents, comprising 210 household heads/owners of properties and 26 heads of firms in the estate surveying sector. Data collected were captured in the Statistical Package for Social Sciences (SPSS Version 20) and were analysed using Mean Item Score (MIS), Standard Deviation (SD), Relative Importance Index (IRR), Factor Analysis (FA), and Spearman`s Rank Order Correlation Coefficient to test the study's hypothesis. Findings showed a significant statistical relationship between land accessibility methods and real-estate development (rho = 0.934; P > 0.05). It was also discovered that issues of poor land registration system, personal status, family status and delay in documentation of title were major factors affecting land accessibility in the study area. Consequently, the study recommends statutory adjustment of land-accessing methods in the city in the bid to provide equal access that will further guarantee the effectiveness of the process. This could be achieved by enacting laws and policies that will enhance easy access to land. It is also necessary to tackle the indigenous land ownership syndrome, as a way to remove a major impediment to land allocation at the family and community levels. Land officers in the ministry need to undergo regular and compulsory training for effectiveness in land documentation and transactions in the state.

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1.0 Introduction

In all human activities, land – as part of the environment and a natural resource – remains a key, indispensable element. Land is a major factor of production and a vital asset in the socioeconomic development of any country or society (Nagya & Udoekanem, 2022). Adjekophori et al. (2022a), citing Arjjurmend and Seid (2018), argue that land is a necessity for sustainable real-estate

development. However, one of the key factors hampering adequate and affordable real-estate development in most African countries is access to land. Globally, land acquisition is key to effective and sustainable real-estate development. Access to land, apart from being a fundamental human right, is also a core objective of the Sustainable Development Goals (SDGs) of the United Nations. Meeting this need, however, appears to have defied all sustainable strategies. Land has been recognized as a major factor for any form of development and production. Other factors, e.g., labour, capital and entrepreneurship, can only be relevant when land is available and accessible, hence the indispensable role of land in any form of real-estate development. Rapid urbanization due to unprecedented population growth and rural-urban migration in most African cities, including Nigeria, makes land scarce and prohibitively priced, even as housing demand continues to rise, thereby making it difficult for low-income and vulnerable groups to access affordable and decent housing (Ofori, 2020). Unrestrained urban growth makes it difficult for cities to provide residents with decent housing and other urban infrastructure, as enshrined in the UN's Sustainable Development Goal (SDG) 11.

According to Adjekophori et al. (2022a), while urban growth relies heavily on access to land, it is paradoxical that, as the world population grows, the quantity of land continues to decline. Legal access to land, according to Arjjumend and Seid (2018), is a strategic necessity for the provision of adequate and affordable housing for all, especially the vulnerable. African cities are rapidly growing, with urban populations projected to hit 2.5 billion by 2050 at an urbanization rate of 58% (World Bank, 2015a). This implies the urgency of additional housing alongside other infrastructure, which also relies on land availability and accessibility amongst competing uses.

Nnamani and Ogbuefi (2023) note that an adequate supply of land is generally recognized as a prerequisite for a sustainable housing delivery system. In many developing countries, however, it has been observed that access to land for housing development in the urban areas is becoming increasingly problematic. In most African countries, urban land is now a commodity to acquire and sell to the highest bidder (Abdullahi, 2018). Oladehinde et al. (2018), quoting Omirin (2003), observed that access to land is highly essential, particularly in the improvement of quality of life, given that it plays basic roles in housing provision and poverty reduction as countries aim for development, especially among urban dwellers. As to the core objective of the SDGs, however, land accessibility has become more tenuous than ever.

The involvement of any real estate developer in any housing programme begins with access to land that would be suitable for such development. Such land, according to Chukwujekwu (2012), must have title documents whose ownership could be transferred and must be free of all encumbrances before it will be attractive for real-estate development. Several factors affect access to land for housing development in African cities, such as lack of property rights, low economic status, illiteracy, lack of interest in land matters, as well as land affordability and availability, etc. (Omirin, 2003; Ajayi & Adebayo, 2017; Adjekophori, 2021). As Cavicchi (2021) reports, rapid urban population growth in a global context (UN, 2018) has led to a dramatic housing affordability and accessibility crisis.

Before the enactment of the Land Use Act (LUA) of 1978, Nigeria operated a dual land-tenure system (the northern and southern land-tenure systems), which created multiple challenges of land access for individuals, groups, corporate bodies and government. As Adjekophori et al. (2022a) argued, rather than easing access to land, among other goals, the Land Use Act actually hindered effective and sustainable real-estate development, making land inaccessible and unaffordable to the low-income, middle-income and vulnerable groups, especially in the urban centres.

In most urban centres today, access to land for real-estate development can be obtained only through the federal and state governments and traditional owners (*omoto, omo onile*). This is an unresolved conflict of interest between these parties, according to Gbadegesin et al. (2016), citing Omirin (2002), who noted that the combined effect of the dual land acquisition system, with its accompanying demographic and socioeconomic dynamics, caused land inaccessibility in Nigeria's urban cities.

Given the significance of land accessibility for sustainable real-estate development and the plethora of factors and challenges inhibiting access to land in African urban centres, various experts have undertaken studies on different aspects of land accessibility (Omirin, 2002; Ado, 2010; Chukwujekwu, 2012; Odudu, 2015; Gbadegesin et al.,2016; Ajayi & Adebayo, 2017; El-hadji, 2018; Arjjumend & Seid 2018; Adjekophori et al., 2022; Ba-an et al., 2022; Nnamani & Ogbuefi, 2023). These studies have identified issues such as affordability, availability, tenure security, ease of transaction, exorbitant cost, competition, illiteracy, educational level, economic status, and location, as well as the dynamics of land demand and supply

Despite the identification of land accessibility as a bane to real-estate development in the Nigerian context, there remains a dearth of research on land accessibility factors and read estate development in the entire south-south region of the country, especially Benin City. Therefore, this study seeks to answer the following crucial questions: What are the significant factors inhibiting land access for real-estate provision? What relationship exists between the factors and effective as well as sustainable real-estate development? Accordingly, using the relative importance index and factor analysis, this study aims to empirically identify and ascertain the main land-accessibility factors hampering effective and sustainable real-estate development. Based on statistics, it also seeks to test the relationship, if any, between land accessibility and real-estate development in Benin City, Nigeria.

2.0 Literature Overview

The Concept of Land

Land is a portion of the environment and a natural resource that plays a crucial role in human activities (Akhmad et al., 2021). It is an important factor of production and an essential resource for socioeconomic growth and development (Nagya & Udoekanem, 2022). Legally, land as a subject of ownership, is viewed in terms of abstract, incorporeal rights, e.g., right of way and other easements, as well as profits enjoyed by a person over the ground and buildings of another person (Ajoku & Nubi, 2010; Udoudoh, 2018). As a critical element in the development process, land, with its ownership and uses, has always played a pivotal role in shaping identities, defining power relations and highlighting the sociopolitical and economic procedures at work (Ajoku & Nubi, 2010; Chigbu, Paradza & Mwesigve, 2019).

Land Accessibility

Access to land remains a major factor constraining real-estate development. As Nubi and Ajoku (2011) found, land is crucial to the process of creating sustainable human settlements. Adjekophori (2022a), citing Omirin (2002), describes land accessibility as the availability of useful land, the affordability of such property and the ease of transaction with the land. Land accessibility, on the other hand, refers to the ease with which people can reach and utilize land for various purposes, such as housing, agriculture, transportation and other economic activities. Therefore, access to land and its resources is considered a crucial element in the betterment of the living conditions of urban dwellers (Kamal et al., 2022*)*. Adebayo (2018), quoting Omirin (2002) and Bello (2009), identified four components of land accessibility: availability of usable land, affordability of such land, ease of transaction with that land, and security of the owner's right. For land to be said to be accessible to the end users, it must be physically available and economically affordable while aiding ease of transaction and guaranteeing security of tenure.

Empirical Studies on Factors Affecting Access to Land

Several factors affect land accessibility. Famakinwa et al. (2017) studied factors associated with land accessibility among rural dwellers in Osun State, Nigeria. Among the major factors identified in the study were personal status, family status, economic status, indigeneship status, residency status, group membership status, community influence, and constituted authority influence. In their study of factors influencing access to urban land for private housing development in Minna, Nigeria, Umar and Udoekanem (2022) reported that titling and locational factors, socioeconomic factors, procedural bottlenecks, as well as land condition and accessibility are significant for accessing land from individuals for private housing development in the city. Ekenta and Kalu (2016) conducted a study on the socioeconomic factors affecting accessibility

to land for real property investment. Their results confirmed that factors such as security of land tenure, title alienation of land owners, land title transfer, high and unnecessary cost, restrictions, as well as land disputes and conflicts, significantly affect land accessibility for real property investment. On their part, Ibrahim, Samaila and Garba (2024) found that education, alongside socio-demographic, cultural and community-related factors, significantly affect land access for youth in Nigeria's Kebbi State. According to Taiwo, Heijden and Peter (2016), if land accessibility makes land available, rapid real-estate development will be aided by affordability, ease of transaction and security of tenure. It is worth noting that unequal access to land and weakness of land governance have also played a part in generating social unrest and instability, even as awareness continues to rise on the political risk of tenure insecurity of many households and the mismanagement of land administration.

The Research Gap

As the foregoing literature summary shows, there is a plethora of studies on land accessibility worldwide. However, the Benin City context is yet to be added to the literature, hence the significance of this study. Besides, most of the previous studies adopted a theoretical and qualitative approach in analyzing secondary data, thus offering limited understanding of how stakeholders can optimise their investment in real estate and cope with potential risk. The current study adopts a cross-sectional approach. Thus, it enriches the literature by using a combination of statistical tools and hypothesis testing in the bid to analyze the factors affecting access to land for real-estate development activities in Benin City, Nigeria.

3.0 Materials and Methods

The setting for this study is Benin City, which has a total land area of 98,973.51 Ha, according to the Edo Geographical Information System. The study evaluates the factors affecting effective land accessibility and sustainable real-estate development in the study area. Benin City is the capital and largest city of Edo State, which is located in Nigeria's south-south region. It has a latitude 6.3350^0 N and a longitude 5.6037^0 E. It is situated approximately 40 kilometres (25 mi) north of the Benin River and 320 kilometres (200 mi) by road east of Lagos. Benin City is the centre of Nigeria's rubber industry, with oil production also being a significant industry there. Benin City was the principal city of the Edo Kingdom, which flourished between the 13th and 19th centuries. The choice of Benin City for the study is premised on the fact that it is one of the conurbations in Edo State and its seat of administrative power. It receives the population overflow from other cities and towns in the state. Most of the people who move from various towns in search of greener pastures in the state tend to settle in Benin City, leading to overburdening from the rural-urban drift and its accompanying land access complexities. Moreover, Benin City is one of the fastest-growing urban areas of Edo State, hence its emergence as a major commercial hub with an active real-estate market.

Methodologically, the study adopted a cross-sectional technique using a descriptive cum survey research design, wherein both qualitative and quantitative data were collected simultaneously and analyzed together (Creswell & Plano-Cleark, 2018; Shakantu & Ibrahim, 2020). The authors gathered data between January and June 2023, using a well-structured 5-point Likert format questionnaire administered to 236 respondents comprised by 210 household heads/owners of properties and 26 heads of active estate-surveying firms in Benin-City. The major criteria for participant selection was that such an individual should be, in one way or another, the owner of a property in the study area and should also be an adult.

Regarding difficulties faced during the population sampling, the authors can report constraints of cost and time (Ba-an, 2022). Thus, the sampling procedure focused on producing cost-effective yet accurate study findings (Singh, 2006; Ofori, 2020). The household heads/landowner participants were selected through a systematic random sampling technique, while the Estate Surveyors and Valuers were purposively selected. The data collected were captured with the aid of the Statistical Package for Social Science (SPSS) Version 20 and were analyzed using descriptive and inferential statistical tools: mean, standard deviation, relative impact index (RII), and factor analysis. A Spearman's rank correlation test with $p = 0.05$ was employed to test any significant relationship between land

accessibility methods and real-estate development (Fenton & Nell, 2019; Ofori, 2020).

The data were measured on a 5-point Likert scale. The internal consistency and reliability were tested with Cronbach`s alpha @ 0.08, which is between the standard range of between 0.08 and 0.95 (Adjekophori et al., 2022a; Jamsen, 2021; Kolbediri & Sobhiyah, 2014). The Meyer-Olkin (KMO) test and Bartlett`s sphericity test were used to confirm whether the data from the measurement was sufficient to test and validate the factor analysis. Principal Component Analysis (PCA) was adopted to analyze data on the minimum number of factors by concentrating the explanatory power of the first factor (Rossoni, Engelbert & Bellegard, 2016; Adjekophori et al., 2022a). The results of the analysis are presented and discussed in the next sub-heading.

4.0 Findings and Discussions

Table 1: Methods of land accessibility for real-estate development in the study area

S/N	Methods	RII	STD	Rank
1	Purchase	0.95	1.144	1st
2	Inheritance	0.94	.926	2nd
3	Gift	0.92	.734	3rd
4	Plot subdivision	0.91	.839	4th
5	Rented/lease	0.91	1.112	4th
6	Adverse possession or prescription	0.74	1.222	5th
7	Systematically through land reform policies	0.43	.648	6th
8	Application for grant of right of occupancy	0.41	.883	7th
9	Application for rectification of informal purchase	0.40	.651	8th
10	Deemed grant of occupancy	0.33	.950	9th
11	Government allocation	0.29	1.022	10th
12	Squatting illegally on land	0.28	.968	11th
13	Access to vacant or abandoned land	0.27	.955	12th
14	Community allocation	0.23	.936	13th

Source: Field survey, 2023

Table 1 shows the methods of land accessibility for real-estate development in the study area. It is clear that purchase, inheritance, and gift were the major means of land accessibility there, ranking 1st, 2nd, and 3rd with a related importance index of 0.95, 0.94 and 0.92, as well as standard deviation of 1.144, .926 and .734 respectively. Next in the ranking are plot subdivision, rented/lease, adverse possession or prescription, and systematically through land reform policies, ranking 4th, 5th, and 6th with a related importance index of 0.91, 0.74 and 0.43, and standard deviation of 1.112, 1.222 and .648 respectively. The least processes or means of land accessibility for real-estate development in the study area are squatting illegally on land, accessing vacant or abandoned land and bringing it into productive use, and community allocation. They were ranked 11th, 12th, and 13th with a related importance index of 0.28, 0.27 and 0.23, and standard deviation of .968, .955 and .936, respectively. The standard deviation revealed the level of variance in the mean score and the relative importance index. By implication, the mean score and the relative importance index of the level of land accessibility through purchase varied by 1.144. This affirms the findings by Gbadegesin (2016), Ajayi and Adebayo (2017), Camilla (2022), and Nnamani and Ogbuefi (2023) on the methods of land accessibility.

Table 2: Factors affecting land accessibility in the study area

S/N	Factors	MIS	RII	Rank
1	Poor land registration system	4.51	0.90	1st
2	Personal status	4.51	0.90	1st

3	Delay in documentation of the title	4.44	0.89	2nd
4	Family status	4.38	0.88	3rd
5	Community influence	4.38	0.88	3rd
6	Poor land administrative system	4.36	0.87	4th
7	Economic status	4.32	0.86	5th
8	Informal land market influence	3.98	0.80	6th
9	Constitute Authority influence	3.95	0.79	7th
10	Population influence	3.90	0.78	8th
11	Location/accessibility	3.88	0.78	8th
12	Land titling issue	3.82	0.76	9th
13	High transaction cost	3.76	0.75	10th
14	Poor land-use planning	3.72	0.74	11th
15	Lack of documentary evidence of owner	3.70	0.74	11th
16	Population pressure	3.69	0.74	11th
17	Youth restiveness factor	3.68	0.74	11th
18	Litigation factor	3.68	0.74	11th
19	High purchase price	3.68	0.74	11th
20	Fear of double sale	3.65	0.73	12th
21	Indigenous factor	3.63	0.73	12th
22	High land demand	3.63	0.73	12th
23	High cost of obtaining a development permit	3.63	0.73	12th
24	Activities of land market participants	3.62	0.72	13th
25	Household income level	3.62	0.72	13th
26	Prevailing Agricultural Factor	3.58	0.72	13th
27	Inadequate infrastructural facilities	3.58	0.72	13th
28	Political instability	3.57	0.71	14th
29	Religion influence	3.52	0.70	15th
30	Poor road network	3.47	0.69	16th
31	Inability of the poor to access land	3.42	0.68	17th
32	Inadequate land supply	3.28	0.66	18th
33	Increasing real-estate development	3.26	0.65	19th
34	Inappropriate plot subdivision	3.23	0.65	19th
35	Complex land transfer procedure	3.18	0.64	20th
36	Cheap land transaction cost	3.06	0.61	21th
37	Bureaucratic delay and procedure	3.06	0.61	21th

Source: Field Survey June 2023

Table 2 shows the factors affecting land accessibility in the study area. It can be seen that poor land registration system, personal status, delay in documentation of title, and family status were the major factors identified as affecting land accessibility in the study area, with mean item scores of 4.51, 4.44 and 4.38, as well as relative importance indices of 0.90, 89 and 0.88 respectively. Next in the ranking were poor land administration system, economic status, and the informal land market influence. These were ranked 4th, 5th, and 6th with mean item scores of 4.36, 4.32 and 3.98, as well as relative importance indices of 0.87, 0.86 and 0.80 respectively. The least ranked factors affecting land accessibility in the study area were complex land transfer procedures, cheap land transaction cost, and bureaucratic delay and procedure. These were ranked 20th and 21st, with mean item scores of 3.18 and 3.06 and relative importance indices of 0.64 and 0.61 respectively.

The reliability test of responses determined through KMO and Bartlett's Test, as shown in Table 3 below, revealed a high level of internal consistency among the

items at a 0.682 Kaiser-Meyer-Olkin Measure of Sampling Adequacy. This indicates that the data were suitable for further analysis, with the submissions of respondents considered suitable and reliable. The result of the chi-square statistic (2657.516) at a p-value of 0.000, which is less than the 0.05 level of significance, revealed that respondent opinions on these challenges are statistically and significantly related; in other words, the respondents strongly agreed that land accessibility is a critical factor in real estate development.

The total variance explained by land the factors affecting land accessibility in Benin City is presented in Table 4. The eigenvalue in the table, as well as the total under the eigenvalue, revealed the amount of total variance in the original variable accounted for by each of the components. The variance is simply the ratio of variance accounted for by each of the components to the total variance of the variables. The extraction of the sum of the square loadings in the second section explains the variability in the original 37 variables, out of which eleven (11) factors were loaded. The extracted components explain the 73.366% variability in the original variables. Therefore, this study considerably reduces the data by selecting the extracted components as the most emphasized factors or components with a minimum of 26.634% loss of information. This further indicates that the outlined determinant factors affecting land accessibility in Benin City are representative of all the other reasons.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**.682**
Bartlett's Test of Sphericity	Approx. Chi-Square	2657.516
	Df	666
	Sig.	.000

Source: Field Survey, June 2023

Table 4: Total variance explained on the factors affecting land accessibility in Benin City

Table 4: Total variance explained on the factors affecting land accessibility in Benin City

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	6.348	17.158	17.158	6.348	17.158	17.158	3.268	8.833	8.833
2	4.305	11.635	28.792	4.305	11.635	28.792	3.120	8.432	17.266
3	3.873	10.468	39.261	3.873	10.468	39.261	2.646	7.153	24.418
4	2.400	6.487	45.748	2.400	6.487	45.748	2.582	6.978	31.397
5	1.978	5.346	51.094	1.978	5.346	51.094	2.503	6.764	38.161
6	1.667	4.505	55.599	1.667	4.505	55.599	2.479	6.700	44.861
7	1.545	4.176	59.775	1.545	4.176	59.775	2.474	6.686	51.547
8	1.395	3.770	63.545	1.395	3.770	63.545	2.416	6.531	58.078
9	1.334	3.605	67.150	1.334	3.605	67.150	2.164	5.849	63.927
10	1.190	3.216	70.366	1.190	3.216	70.366	2.037	5.505	69.431
11	1.110	3.000	73.366	1.110	3.000	73.366	1.456	3.935	73.366
12	.984	2.659	76.025						
13	.861	2.327	78.352						
14	.792	2.141	80.494						
15	.687	1.857	82.350						
16	.636	1.719	84.069						
17	.583	1.575	85.644						
18	.547	1.479	87.123						
19	.510	1.378	88.501						
20	.484	1.308	89.809						
21	.409	1.105	90.913						
22	.403	1.089	92.003						
23	.339	.916	92.919						
24	.330	.893	93.812						
25	.317	.856	94.668						
26	.282	.761	95.429						
27	.244	.659	96.088						

28	.231	.625	96.713						
29	.187	.504	97.218						
30	.178	.482	97.700						
31	.165	.445	98.145						
32	.148	.400	98.545						
33	.141	.380	98.925						
34	.118	.318	99.243						
35	.108	.292	99.535						
36	.093	.252	99.787						
37	.079	.213	100.000						

Extraction Method: Principal Component Analysis

Table 5: Loading analysis of factors affecting land accessibility in Benin City

Factors	**Factor Loading**	**Eigenvalue**	**% of Variance**
FACTOR 1: Community and government factor		6.348	17.158
Community influence	.676		
Constituted authority influence	.805		
Population influence	.819		
Prevailing agricultural factor	.720		
Indigenous factor	.834		
FACTOR 2: Market and religion factor		4.305	11.635
Cheap land transaction cost	.550		
Inadequate land supply	.833		
High land demand	.782		
Household income level	.681		
Religion influence	. 541		
FACTOR 3: Financial and bureaucratic factor		3.873	10.468
Increasing real-estate development	.735		
Bureaucratic delay and procedure	.821		
Inability of the poor to access land	.652		
FACTOR 4: Litigation and infrastructural factor		2.400	6.487
Litigation factor	.781		
Poor road network	.756		
Inadequate infrastructural facilities	.912		
FACTOR 5: administrative factor		1.978	5.346
Poor land administrative system	.689		
Poor land registration system	.862		
Delay in documentation of the title	.860		
FACTOR 6: individual and economic factors		1.667	4.505
Personal status	.821		
Family status	.843		
Economic status	.674		
FACTOR 7: Market factor and population factor		1.545	4.176
High transaction cost	.602		
Activities of land market participants	.775		
Population pressure	.805		
Land titling issues	.767		
FACTOR 8: Political and developmental factor		1.395	3.770
Informal land market influence	.600		
High cost of obtaining a development permit	.627		
Poor land-use planning	.818		
Political instability	.619		
FACTOR 9: Youth restiveness and cost factor		1.334	3.605

Youth restiveness factor	.774		
Lack of documentary evidence	.862		
High purchase price	.582		
FACTOR 10: Legal and accessibility factor			3.216
Fear of double sale	.591		
Inappropriate plot subdivision	.621		
Location/accessibility	.704		
FACTOR 11: Land transfer factor			3.000
complex land transfer procedure	.755		

Source: Field Survey, June 2023

In Table 5, the results of the analysis of factors affecting land accessibility in Benin City show the eleven (11) factors that loaded. Factor one (1) is the community and government factor, which explains 17.158% variance in the determinant factors affecting land accessibility in Benin City. The community and government factors include community influence, constituted authority influence, population influence, prevailing agricultural factor, and the indigenous factor. The second (2) factor involved the market and religion factors, which explain the 11.635% variance. Under these are cheap land transaction costs, inadequate land supply, high land demand, household income level, and religious influence.

Factor three (3) is named the financial and bureaucratic factor, which explains the 10.468% variance in the determinant factors affecting land accessibility in Benin City. Such financial and bureaucratic factors include increasing real-estate development, bureaucratic delay and procedure, and inability of the poor to access land. Factor four (4) is the litigation and infrastructural factor, which explains the 6.487% variance in the determinant factors affecting land accessibility in the study area. Such litigation and infrastructural factors include litigation, poor road network and inadequate infrastructure.

Factor five (5) is the administrative factor and it explains the 5.346% variance in the determinants affecting land accessibility in the study area. Among the administrative factors are poor land administration, poor land registration and delay in documentation of title. Factor six (6) is individual and economic, explaining 4.505% of the variance in the determinants affecting land accessibility in the study area. These factors include personal status, family status and economic status.

Factor seven (7) involves the market factor and population factor, which explains the 4.176% variance in the determinant factors affecting land accessibility in Benin City. Such market factors and population factors include high transaction costs, activities of land-market participants, population pressure, and land titling issues. Factor eight (8) is tagged the political and developmental factor, which explains the 3.770% variance in the determinant factors affecting land accessibility in the study area. Under this rubric are informal land-market influence, high cost of obtaining a development permit, poor land-use planning and political instability.

Factor nine (9) is the youth restiveness and cost factor, which explains the 3.605% variance in the determinants affecting land accessibility in the study area. These include youth restiveness, lack of documentary evidence and high purchase price. Factor ten (10) is the legal and accessibility factor, which explains the 3.216% variance in the determinant factors affecting land accessibility in the study area. Such legal and accessibility factors include fear of double sale, inappropriate plot subdivision, and location/accessibility. Factor eleven (11) is the land transfer factor, which explains the 3.000% variance in the determinants affecting land accessibility in the study area. This land transfer factor relates to the complex land transfer procedure.

Table 6: How land accessibility affects real-estate development in the study area

S/N	Effect	RII	Rank
1	Increase real-estate development	0.81	1st
2	Increase the value of the land	0.76	2nd
3	Attract real-estate investors	0.76	2nd
4	Increase the demand for land	0.75	3rd
5	Encourage real-estate investment	0.74	4th
6	Create competition between investors	0.72	5th
7	Decrease the demand for land	0.72	5th
8	Decrease real-estate development	0.71	6th
9	Discourage real-estate investment	0.71	6th
10	Decrease the value of land	0.70	7th
11	Increase the cost of real-estate development	0.70	7th
12	Decrease the cost of real-estate development	0.66	8th

Source: Field Survey, June 2023

Table 6 shows how land accessibility affects real-estate development in the study area. It is obvious that increasing real-estate development, increasing the value of land, attracting real estate investors, and increasing the demand for land are the major effects of land accessibility on real-estate development in the study area, with relative importance indices of 0.81, 0.76 and 0.75, ranking1st, 2nd and 3rd respectively. These submissions could be due to the fact that when land is easily obtained or acquired in an environment, it will attract investors, thus leading to development and an increase in property value. Next in the ranking are, encourage real-estate investment and create competition between investors, ranking 4th and 5th with relative importance indices of 0.74 and 0.72respectively. The least significant effects of land accessibility on real-estate development in the study area were 'increase cost of real-estate development' and 'decrease cost of real-estate development', with relative importance indices of 0.70 and 0.66, which rank 7th and 8th, respectively.

Table 7: Hypothesis Testing

			Land accessibility methods	Real-estate development
Spearman's rho	land accessibility methods	Correlation Coefficient	1.000	.934**
		Sig. (2-tailed)	.	.000
		N	12	12
	Real-estate development	Correlation Coefficient	.934**	1.000
		Sig. (2-tailed)	.000	.
		N	12	14
**. Correlation is significant at the 0.01 level (2-tailed).				

The result of the hypothesis is presented in Table 7. The Spearman's rank order is a non-parametric correlation technique used to test the significance of the correlation or relationship between two or more variables. For this study, this technique was employed to test the hypothesis of this study, which is that "There is no statistically significant relationship between land accessibility methods and real-estate development in Benin City". The result showed that the null hypothesis is rejected because the p-value of the statistics at 0.000 is significantly less than the 0.05 level of precision. Therefore, the Spearman's rank order correlation coefficient at 0.934 is statistically significant; in other words, there is a statistically significant relationship between land accessibility methods and real-estate development in Benin City. By implication, real-estate development is significantly determined by the methods of land accessibility for development.

4.0 Discussion of Findings

Table 1 presents the strategies of accessing land for real-estate development in Benin City. The majority of the respondents attested to the fact that purchase, inheritance and community allocation were the most effective means of accessing land in the study area. This aligns with findings by Ajayi and Adebayo (2017) as well as Nnamani and Ogbuefi (2023). The present study also found that high cost of land, insecure tenure and difficulty in land transactions were the major factors affecting access to land in the study area. This implies that if access to land is not hampered by cost, security and difficulty in transaction, sustainable real-estate development is guaranteed. This consolidates the assertion by Gbadegesin et al. (2016), Adjekophori et al. (2022), and Nnamani and Ogbeufi (2023) that land rights security is a requisite factor for sustainable real-estate development.

The study also found no statistically significant relationship between land accessibility and real-estate development in Benin City, using the Pearson chi-square test statistic in Table 6 ($r = .266$; $P > 0.05$). The implication of this is that real-estate development in the study area is negatively affected by land accessibility factors, thus making affordable housing a herculean task for the low-income and vulnerable groups. This finding underscores the results of Omirin (2003) and Gbadegesin (2016) on the factors affecting land accessibility and housing delivery.

Table 2 further shows that poor land registration system, personal status and delay in documentation of title are the major factors affecting land accessibility in the study area, with mean item scores of 4.51, 4.44 and 4.38, as well as relative importance indices of 0.90, 0.89 and 0.88 respectively. This confirms the findings by Gbadegesin et al. (2016), Famakinwa et al. (2017), Oladehinde et al. (2018) and Ba-an et al. (2022), who found that tenure security and high cost of land are major accessibility factors inhibiting real-estate development.

Table 6 presents how land accessibility affects real-estate development in the study area. Here, 'increase real-estate development', 'increase the value of land', and attract real-estate investors' posted the relative importance indices of 0.81, 0.76 and 0.75, which ranked 1st, 2nd and 3rd respectively. The submissions could be due to the fact that, when land is easily obtained or acquired in an environment, it will attract investors, thus leading to development and an increase in property value. This affirms the finding by Gbadegesin et al., (2016) that the joint influence of land accessibility factors on housing provision is not strong. Therefore, the present study largely aligns with the results from previous studies on the major factors affecting land accessibility, especially for real-estate development.

It must be noted, however, that this study was not conducted with a large sample size, given the population of Benin City; thus, the results and conclusions may not be generalizable, especially in terms of long-term effects. Further study is therefore recommended to cover larger and more diverse samples with a view to providing a deeper insight into and exploring the long-term effects of the factors affecting access to land for real-estate development.

5.0 Conclusion and Recommendations

Land makes invaluable contributions to the overall welfare of humankind and real-estate development. Land is not only an indispensable element in the development process but also the most basic natural resource on which all human activities take place. This study evaluated the factors affecting land accessibility for effective and sustainable real-estate development in Benin City, Nigeria. Based on the data analysis, the study found a significant statistical relationship between land accessibility factors and real-estate development in the study area ($r = 0.934$; $P > 0.05$). It was also found that poor land registration system, personal status, delay in documentation of title, and family status are the major factors affecting land accessibility in the study area.

The study equally found an increase in demand for real-estate products, hence the attraction for real-estate investors; however, the increasing demand for land and the high value of land have a major effect on land accessibility for real-estate development in the study area. Therefore, the study recommends the need for statutory adjustment to the method of accessing land in the city in the bid to ensure equal access that will further guarantee the

effectiveness of the process. This goal could be achieved by promoting laws and policies for enhancing easy access to land. It is also necessary to tackle the indigenous land ownership syndrome in efforts to reduce the impediments to land allocation at the family and community levels. Accordingly, officers in the ministry of lands need to undergo regular and compulsory training for effectiveness in land documentation and transactions in Edo State.

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