

Assessment of factors influencing access to residential land in urban border communities of Imeko/Afon Local Government Area of Ogun State, Nigeria: A gender dimension

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ABSTRACT

This article examines the factors influencing access to residential land among men and women in Ogun State border communities, Nigeria. A multi-stage sampling technique was employed to select 411 male and female homeowners. Copies of the questionnaire were administered to 362 respondents (196 males and 166 females), representing 54% male and 46% female homeowners. Frequency distribution, percentages, factor analysis, binary probit regression, and correlation analysis were utilized to analyze the data collected from male and female homeowners. The study reveals that the proportion of female respondents with insecure access is higher than that of their male counterparts. This indicates that women are more land-insecure compared to men. The study shows that affordability, land availability, procedural issues, security of tenure, and personal factors were found to influence men's access to residential land, while affordability, land availability, security of tenure, personal, and procedural issues were the factors among women. The use of binary probit regression analysis indicates that lower levels of affordability, limited land availability, and weaker socioeconomic status tend to reduce men's likelihood of access to residential land, while improvements in tenure security and procedural conditions often increase their probability of land access. In contrast, limited land availability and bureaucratic barriers tend to reduce women's likelihood of access, while an increase in financial capacity, tenure security, and stronger socioeconomic status enhances their access to residential land. Findings from the correlation analysis demonstrate that access-related land factors of male homeowners are positively influenced by socio-economic variables, while female homeowners experience predominantly negative associations, particularly with marital status, household size, and income. The study concluded that access to residential land is influenced by different factors, and these factors significantly influence the level of access among men and women.

KEYWORDS

residential land; access to land; housing; gender; border communities; Nigeria

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1. Introduction

The issue of land is a controversial topic among scholars in the Global South (Adebayo 2018; Chrinus et al. 2024; Oladehinde et al. 2024; Toulmin 2009). Access to land is central to residential development, a major element in urban development. Adequate land supply is generally recognized as a prerequisite for sustainable housing delivery systems. However, limited supply or availability of residential land in cities and emerging urban areas has made access to land for housing development a major issue. In sub-Saharan African countries, urban land is becoming a commodity to acquire, and its acquisition often goes to the highest bidder (Lawal and Adekunle 2018).

Land in recent times constitutes a greater percentage of housing construction costs in urban areas of Nigeria, and only privileged individuals with political and economic power have access to it through government allocation or the formal land market (Kuma 2016). The urban poor, who are average income earners, often struggle to gain access to land for housing development. Land access for housing development is a major challenge among the urban poor in Nigeria, especially in urban border communities. These communities have recently become urbanized due to uncontrolled migration from neighboring countries in western Nigeria and other areas within the country (Oladehinde et al. 2023; Ojo et al. 2019). The population increase has led to high pressure on residential land, making access increasingly competitive. As a result, available residential land is often unaffordable, affordable land is inaccessible, and accessible land is insecure. According to Bernstein (2005), access to land is frequently hampered by issues such as incessant conflict and litigation, fraudulent land sales, marginalization of non-landholding families, high land costs, stringent titling procedures, communal conflict, and tenure insecurity. Other issues include bureaucratic and administrative bottlenecks, as well as lengthy and challenging processes for obtaining permissions and approvals (Oladehinde et al. 2023; Udechukwu 2008; Gbedegesin et al. 2016). While previous studies have shown that land accessibility is a significant urban development problem regarding housing delivery in Nigeria, there remains a dearth of gender-focused studies, particularly with evidence from international border communities in Ogun State, Nigeria.

Urban communities in Nigeria's border region are struggling to cope with the increasing demand for land for housing development. This demand is expected to escalate in the near future due to anticipated population growth. Accessibility to residential land in these communities is a major issue, particularly given the limited supply of land. Urban poor from other regions may find it challenging to build their own homes due to the bureaucratic process involved in land access, potentially threatening their access

to decent and sustainable housing. Ensuring secure access to residential land in Nigeria's border communities, especially among low-income groups where the informal market prevails, has become a critical issue. The processes, methods, and procedures for land access, as well as the factors influencing it, may have significant implications for housing development among men and women in these communities. Access to land is deeply influenced by gender, with women facing significant disadvantages compared to men due to discriminatory customary practices, legal, and financial constraints. Women's access is typically mediated through their relationships with male relatives, making it insecure and easily revoked (Oladehinde 2016). These challenges often limit their ability to secure land independently, reinforcing gender inequality in housing and land ownership (Cotula and Mathieu 2008; Opoku 1997).

Apart from this, the government has made efforts to ensure easy access to urban land for residential development through the formulation of land and housing policies. For instance, the Land Use Act of 1978 was formulated to address the problem of land accessibility. The Act vested urban land in the Governor of the state, to be held in trust and administered for the use and common benefit of all Nigerians, irrespective of gender. Nonetheless, access to land remains one of the most significant obstacles to urban housing delivery (Ogu and Ogbuozobe 2001; Oladehinde et al. 2018). The National Housing Policy (NHP 2006) was also formulated to ensure that all Nigerians have access to safe and healthy accommodation at an affordable cost. The policy aimed to make building plots available at the right time, in the right place, and at a reasonable price for those willing to build. Although the policy is well-intentioned, not much progress has been made in solving the problem of land access in Nigeria's border regions. While the policies emphasize equal access to land, regardless of gender, in practice, land accessibility for residential development often varies between men and women (Morenikeji et al. 2022). This variation may be attributed to different factors.

Gender differences in access to and control of land resources remain a significant concern in Sub-Saharan Africa, particularly in Nigeria. To address this, the Sustainable Development Goals (SDGs) 1 and 5, which aim to reduce poverty and promote gender equality in rights and control over land resources by 2030, are crucial. Achieving this goal requires understanding the socio-economic attributes of men and women, methods of land access, and factors influencing their access to residential land in emerging urban communities, especially in border areas. This study will contribute to the body of knowledge on land access dynamics for men and women in urban border communities. This study aims to examine the factors influencing access to residential land among men and women in Ogun State's emerging urban

areas, using border communities in Imeko-Afon Local Government Area (LGA) as a case study. The aim is addressed based on quantitative analysis of data from own survey, which compares subsamples of male and female homeowners. To achieve this aim, the study addresses the following questions: 1. What are the socioeconomic characteristics of men and women in the study area? 2. How do men and women access land? 3. What factors influence men's and women's access to land for housing development in these border communities?

2. Literature review: Conceptual issues

Land is a critical asset for economic, social, and cultural life, shaping power relations and individual identities (IFAD 2006). Access to land goes beyond physical occupation—it also entails rights that are socially or legally recognized, enabling secure usage and control of land (UN-HABITAT 2008; Cotula et al. 2006). According to Oladehinde et al. (2023), residential land access includes the legal and physical ability to obtain land for housing, which can be secure or insecure. Secure access involves acquiring legal titles or occupancy rights, ensuring ownership or use, while insecure access occurs when individuals lack proof of ownership or occupancy rights. Secure access to residential land is crucial for shelter, livelihood security, poverty alleviation, and sustainable development (UN-HABITAT 1996).

Scholars have conceptualized land access using several criteria such as availability, affordability, ease of transaction, and tenure security (Omirin 2003). Availability refers to the presence of usable land within a locality, while affordability reflects an individual's capacity to obtain land within their financial means. The high costs of formal land transactions in countries like Nigeria have been noted as major barriers (World Bank 2009; Marx 2007). Tenure security implies protection from forced evictions and fair compensation during land acquisition (Oyedemi 2018). While several studies (Omirin and Odudu 2012; Oladehinde et al. 2018, 2023; Owoeye and Adedemi 2015) have used these parameters, some studies have also added personal attributes of the land user as part of the contributing factors to land inaccessibility (Oladehinde et al. 2023; Mearns 1999; Kuusaana et al. 2013). Research has shown that land inaccessibility disproportionately affects vulnerable groups, including the poor and women. This study adopts these parameters to evaluate the factors affecting land access for residential development among men and women in the border region of Nigeria.

Access to land is typically achieved through government allocation, inheritance, purchase, gifts, and rental or lease (Nwuba 2017; Arjjumend and Seid 2018). However, the formal land administration system often excludes low-income groups due to bureaucratic

inefficiencies and corruption (Durand-Lasserve 2005; Mabogunje 2003). In response, many urban residents rely on informal markets, which have become the dominant mechanism for residential land access (Durand-Lasserve 2006; Kuma 2016). Despite their accessibility, informal markets are plagued by insecure land titles, high transaction costs, and legal disputes (Rakodi and Leduka 2004; Kironde 2006). These systemic challenges underscore the inadequacy of current land governance structures and administration frameworks (UN-HABITAT 2008). Olujimi and Iyanda (2013) further corroborate that the land rights of the urban poor are inadequately safeguarded, irrespective of their socio-economic status. Consequently, the absence of effective governance and land administration mechanisms has rendered informal land transfers and ownership vulnerable, posing significant implications for poor men and women seeking to secure land for residential development.

Land access in sub-Saharan Africa is often determined by gender. Traditional and customary land tenure systems, which govern the majority of land in the region, tend to favour male ownership and inheritance, thereby marginalizing women in land acquisition processes. Under customary law, land is typically passed down through male lineage, leaving women dependent on male relatives – such as fathers, husbands, or brothers – for access (Cotula and Mathieu 2008; Toulmin 2009). As a result, women's land rights are usually secondary, insecure, and conditional. This patriarchal structure is reinforced by socio-cultural norms that validate male control over land and property, excluding women from critical land transactions such as grants, transfers, or inheritance (Oladehinde 2016). Even where legal reforms exist to promote gender equality in land rights, implementation remains weak due to persistent customary practices and limited awareness among women of their legal entitlements.

Beyond cultural and institutional barriers, women also face economic and procedural constraints that hinder their ability to access land for housing. Women in Nigeria often have lower levels of education and limited access to high-income employment, reducing their financial capacity to purchase land or qualify for credit (Olawore 2008; Olugbemi 2015). Additionally, land acquisition through formal channels is often costly, bureaucratic, and time-consuming, requiring documentation and collateral – such as existing land titles – that women are less likely to possess (Opoko 1997). This makes it difficult for many women to secure loans or navigate complex land registration systems. Consequently, women are pushed toward informal and less secure means of acquiring land, which expose them to risks such as eviction, disputes, or lack of tenure security. These gender-specific challenges not only restrict women's access to safe and adequate housing but also limit their ability to invest in long-term development and economic stability.

2.1 Review of empirical studies

Several studies have examined gender dimensions of land accessibility in Nigeria, but few focus on border communities. For instance, Ajayi and Adebayo (2017) found that land access in Akure was primarily through purchase, inheritance, government allocation, and gifts, with occupation, income, and education being key determinants. Morenikeji et al. (2022) highlighted that only 16% of women in Minna had land access compared to men, attributing this to cultural practices, religious bias, illiteracy, and limited female representation. Similarly, Owoicho et al. (2023) found that men had more access to land due to high costs, customs, communal tenure, and credit access. Popoola et al. (2023) and Masuku et al. (2023) also identified cultural, religious, and legal barriers to women's land access. Despite these studies, little research has addressed gendered land access in Nigeria's border communities.

In addition to gender-focused studies, broader research on land accessibility (Famudehin 2015; Ibrahim et al. 2024; Nagya and Udoekanem 2022; etc.) has largely ignored the unique dynamics of border regions. Famudehin (2015) noted economic and bureaucratic constraints, such as land cost and corruption. Ibrahim et al. (2024) identified socio-demographic and educational factors as key influences. Other studies emphasized land titling, security of tenure, affordability, and acquisition procedures. For example, Gbadegesin et al. (2016) highlighted tenure security, while Omirin (2003) stressed affordability and transaction ease. Nuhu (2019) critiqued Tanzania's formal land system for its complexity, and Adebayo (2018) identified occupation as the most important factor in Kogi State.

Few studies have examined land accessibility in border areas, and those that exist (Oladehinde et al. 2018; Oladehinde et al. 2017) focus mainly on migrants, neglecting gender differences and residents' populations. While Oladehinde et al. (2023) addressed land access for housing development,

identifying affordability, tenure security, procedural factors, personal attributes, and land availability as important determinants. Despite these, the study did not explore the gendered dimensions of land access for residential development. In light of these gaps, the need for research on gender-specific factors influencing land access in emerging urban communities along international borders of sub-Saharan Africa, particularly Nigeria is evident. Existing studies have not sufficiently categorized these factors or addressed their gender implications. This study, therefore, aims to fill that gap by examining gendered factors influencing residential land access, with the goal of informing policy solutions that enhance residential land access and promote equitable and sustainable urban development.

2.2 Conceptual framework

The conceptual framework for this study was inductively developed based on the existing literature on gendered land access, drawing on recurring variables and dimensions identified across multiple studies. It outlines the pathways through which gendered access to land for residential development can be assessed, incorporating key parameters such as land accessibility, the nature of land access, and socio-economic attributes. Specifically, land accessibility is characterized by several variables, which are grouped into four main categories: land affordability, land availability, security of tenure, and procedural factors – categories synthesized from various studies in the literature. Land accessibility for housing among men and women can be conceptualized into three dimensions (Fig. 1). Prior research has demonstrated that these dimensions are effective for measuring land accessibility in the context of housing development (Olujimi and Iyanda 2013; Nwuba 2017; Owoeye and Adedeji 2015; Oyedele 2018; Adebayo 2018; Oladehinde et al. 2023). Guided by this framework, the present study examines the socio-economic characteristics of men and women, the modes through which they access

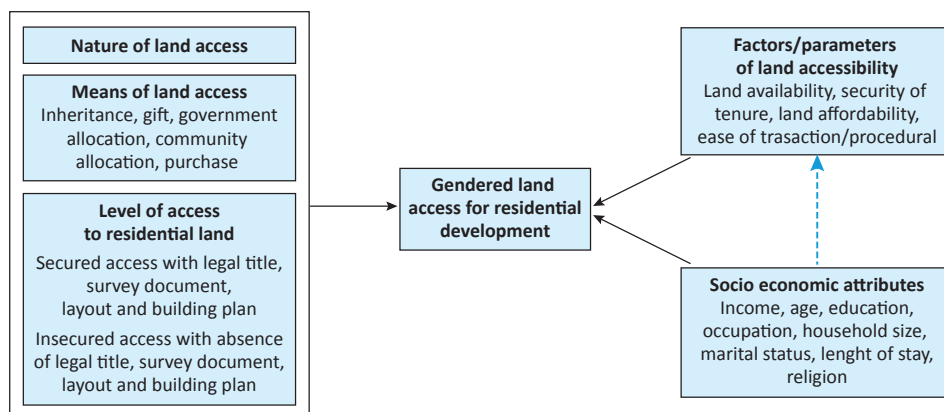


Fig. 1 Conceptual framework on gendered land access for residential development in urban border communities.
Source: Author's compilation (2025).

land, and the factors influencing land access for residential development in the study area. The specific indicators and variables used for measurement are presented in Fig. 1.

3. Methods and materials

3.1 Study area

The study was conducted in the border communities of Ogun State, Nigeria. These communities encompass a range of settlements, from small hamlets to larger villages and towns. This study focuses on emerging urban communities located between 1–50 kilometers from the international boundary as established by Harvey (2008). As a result of urbanization and population increase, residential land use, as observed by Oladehinde et al. (2023), has become the common land use pattern of major towns and emerging sub-urban areas in the border region. Additionally, the expansion of governmental activities and the rise of

commercial hubs in the region have transformed land into both a status symbol and a valuable investment asset for the local population. Importantly, the porosity of Nigeria's border has significantly impacted these communities, as urbanization and population increase are further driven by uncontrolled migration from Nigeria's hinterland and neighboring countries such as the Benin Republic, Ghana, Togo, and Burkina Faso (Oladehinde et al. 2023). The study area, Ogun State, Nigeria, has three (3) border Local Government Areas (LGAs) that share a boundary with the Benin Republic (Fig. 2). These include Ipokia, Yewa North, and Imeko/Afon.

3.2 Sampling procedure and data collection

A multistage sampling procedure was employed to select respondents in the study area. In the first stage, random sampling was used to select one Local Government Area (LGA) from the three identified border LGAs in Ogun State. The selected LGA was Imeko/Afon. In the second stage, four urban communities

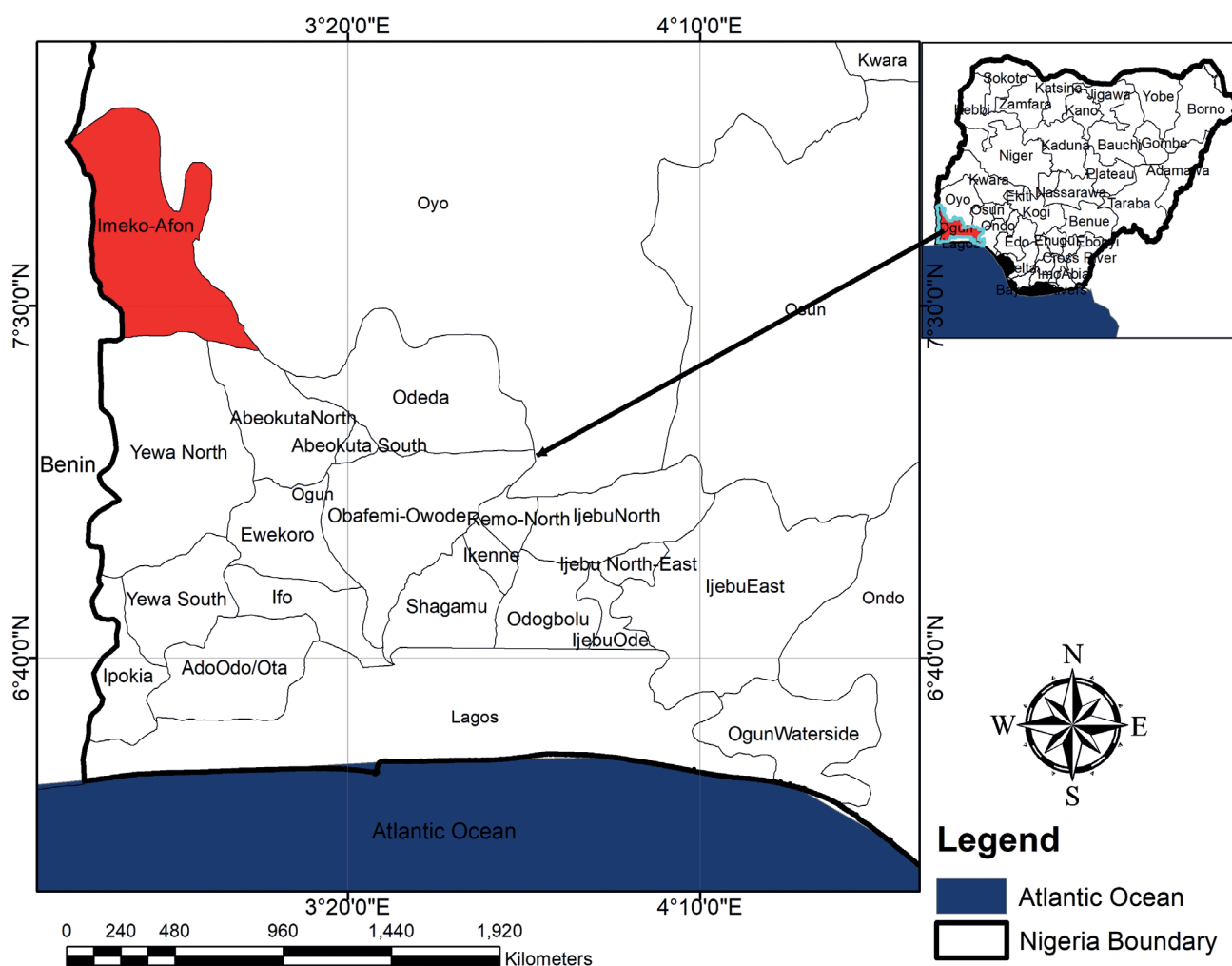


Fig. 2 Nigeria, indicating Ogun State and Imeko Afon Local Government Area.
Source: Cooperative information network (COPINE 2024).

within Imeko/Afon LGA were selected: Iwoye, Ilara, Idiayin, and Idiami. The communities were purposively selected based on criteria such as the presence of urban development, high population density, ongoing urbanization, and notable government and economic activities within a 50 km radius of the international border (Ojo et al. 2019; Oladehinde et al. 2023; Harvey 2008). The third stage involved identifying and selecting residential buildings within the study area. Specifically, the study focused on residential houses constructed through self-help efforts by the owners, as identified during the pilot survey. The majority of sampled buildings were owner-occupied. This selection is consistent with findings from previous studies (Gbadegesin et al. 2016; Oladehinde et al. 2023).

The total number of habitable residential buildings in the study area was determined using a combination of Google Earth software and a physical building count conducted during the pilot survey. A total of 8,985 residential buildings were enumerated across the four selected communities, comprising 1,959 in Iwoye, 2,647 in Ilara, 1,725 in Idiayin, and 1,856 in Idiami. Homeowners were selected through systematic random sampling. In each community, the first owner-occupied residential building was randomly selected, after which every 20th owner-occupied building was included in the sample. In cases where a homeowner was not residing in the building, the next eligible owner-occupied building was selected. At the end of this process, a sample size of 411 residential buildings – representing 5% of the total – was selected and surveyed (Tab. 1). This sample size was considered valid, adequate, and reliable, as it aligns with established guidelines recommending sample sizes between 100 and 1,000 for regional and district-level studies (Casley and Lury 1991). Of the 411 questionnaires administered to respondents, 362 were completed and retrieved, representing a response rate of 88.01%. The sampled respondents were split into two sub-samples of male and female homeowners of the selected buildings, as they were deemed capable of providing reliable information regarding issues related to residential land accessibility in the study area. The selected male and female homeowners during the time of the survey refer to the individuals who are recognized as the owners of a house or property, be it

male or female. The questionnaire was self-administered among the selected homeowners and was divided into three sections. The first section addressed the socio-economic characteristics of the respondents; the second focused on the methods and levels of land access among men and women in the study area; and the third examined the parameters of residential land access within the study area.

The study sampled 362 respondents, consisting of 54% male and 46% female homeowners. The 46% female representation is considered valid and aligns with findings from prior studies in Sub-Saharan Africa, which reported similar or higher proportions of female home or land owners, such as Ajayi and Adebayo (2017) in Nigeria (39.37%), Quansah (2012) in South Africa (35%), and Kuusaana et al. (2013) in Ghana (58%). This representation is particularly appropriate given the urban context of the study, where female land ownership and independence are increasingly prevalent in urban communities of Sub-Saharan Africa.

3.3 Data analysis

The data collected for this study were analysed using both descriptive and inferential statistical methods. Descriptive statistics, including tables, frequency distributions, and percentages, were employed to examine the socio-economic attributes of respondents, levels of access to residential land, and the method of land access. Inferential statistical techniques, including factor analysis, probit regression, and correlation analysis, were employed in the study. Twenty-three variables identified from the literature served as parameters for measuring the factors affecting land accessibility for housing development. Respondents were asked to provide their perceptions or experiences on these variables using a five-point Likert scale, ranging from 5 (strongly agree) to 1 (strongly disagree).

Factor analysis was subsequently used to reduce the number of variables by grouping them into a smaller set of components, using varimax rotation. Variables with factor loadings below 0.50 were excluded from the final component structure (Oladehinde et al. 2023). The retained variables were extracted, grouped, and renamed to reflect the underlying dimensions. As observed by Aiken et al. (2008), factor analysis is particularly useful for eliminating multicollinearity and uncovering latent variables.

A binary probit regression model was used to estimate the likelihood of secure residential land access, with the dependent variable coded as 1 for secure access and 0 otherwise. The independent variables were the extracted factor scores that were derived from factor analysis. The probit model assumes a latent (unobserved) continuous variable underlying the binary outcome, with normally distributed error terms. Coefficients indicate the direction and

Tab. 1 Residential buildings and sample size of the study area.

S/N	Urban communities	Number of buildings	Sample size (5%)	Number of the retrieved questionnaire
1	Iwoye	1959	98	88
2	Ilara	2647	133	119
3	Idiayin	1725	87	80
4	Idiami	1856	93	75
7	Total	8990	411	362

significance of each factor's influence on the likelihood of secure access.

The Pearson product-moment correlation coefficient is a measure of the strength and direction of association that exists between two variables measured on at least an interval scale. Pearson Correlation was used to examine the relationship between extracted factor scores (affordability, land availability, tenure security, and ease of transaction) and the socio-economic characteristics of male and female homeowners (age, income, educational qualification, occupation, and length of stay) in the study area. To achieve this, extracted factors associated with access to residential land were correlated individually with the socioeconomic attributes of men and women.

3.4 Definition of central variables

The study utilized 23 variables sourced from existing literature, which were grouped into five key parameters – land availability, affordability, ease of transaction, tenure security, and personal attributes – through factor analysis. Land availability refers to the physical land space available for various uses within an area, considering its origin and any encumbrances that may limit its use, while Land affordability is the ability of individuals and households to access and afford land for housing and other purposes, given their income and land costs. Ease of transaction refers to the process of navigating the land market and formalizing transactions to obtain valid and secure land titles, while security of tenure involves protection against interference or trespass and adequate compensation in case of compulsory acquisition. Personal attributes include the socioeconomic characteristics (such as age, income, marital status, occupation, length of stay, among others) of the land users/ homeowners (male and female respondents). The factor scores of the extracted five parameters were used in a binary regression model as independent variables, while the nature of land access was used as the dependent variable. A binary variable, such as secure = 1 or insecure = 0, was used in this study. In this study, secure access to residential land involves land acquisition that is backed up with legal titles or right of occupancy to ensure ownership or the right to use the land for housing, while insecure access to residential land means land ownership that lacks legal titles or right of occupancy.

4. Results

4.1 Socioeconomic characteristics of male and female homeowners

Socio-economic characteristics of male and female homeowners include the variables influencing residential land access in the study area. These variables

were incorporated into the factor analysis, binary probit regression, and correlation analysis. Variables of socioeconomic characteristics of men and women in the study area are presented in Tab. 2.

Tab. 2 shows that the majority of respondents in both categories were within the 31–60 age range. Most respondents were married and had relatively small household sizes. Income data reveal that over half (52.0%) of the male respondents earned between ₦18,001 and ₦55,000 per month, whereas most female respondents earned below ₦18,000, indicating a gender disparity in income levels in favour of men. Gender disparity in the level of income might have a significant impact on women's access to and control over land for residential development, particularly in patriarchal societies where customary norms favour men in land ownership. This disparity might lead to women having insecure access to residential land. It can also determine the type of investment in the land. In terms of educational attainment, 41.8% of male respondents had completed secondary education, while the highest proportion of female respondents (53.6%) had attained primary education. This suggests that male and female respondents possessed at least basic literacy skills. Regarding occupational status, the majority of male respondents (73.5%) were self-employed, whereas most female respondents (51.8%) were employed in civil service. Additionally, more than one-third of both male (33.2%) and female (32.5%) respondents had resided in the study area for between 11 and 15 years. The close disparity of length of stay between male and female respondents might strongly impact land access, particularly for women, where land access is tied to long-term occupancy or inheritance.

Tab. 3 presents data on the level of access to residential land among male and female respondents in the study area. The findings reveal that 71.4% of male respondents reported insecure access to land for housing development, while 28.6% had secure access. Among female respondents, 81.9% indicated insecure access, compared to 18.1% who had secure access. This indicates that a higher proportion of men have secure access to land relative to women, whereas a greater proportion of women experience insecure access compared to their male counterparts. These findings suggest that most residential land access, particularly among women, is not supported by legal documentation. This disparity may have significant implications for equitable land access and residential development in the study area.

4.2 Methods of access to residential land

Respondents were also asked to indicate their method of access to residential land (Tab. 4). Among male respondents, the most common method was land purchase (35.3%), followed by community allocation (26.0%), government allocation (18.7%), inheritance

Tab. 2 Socioeconomic characteristics of men and women in the study area.

		Male (N = 196)		Female (N = 166)	
		Frequency	Percentages	Frequency	Percentages
Age	below 30 years	20	10.2	69	41.6
	31–60 years	163	83.2	97	58.4
	above 60 years	13	6.6	0	0.0
Religion	Christianity	79	40.3	78	47.0
	Islam	14	7.1	22	13.3
	traditional	89	45.4	31	18.7
	others	14	7.1	35	21.1
Marital status	single	20	10.2	21	12.7
	married	132	67.3	129	77.7
	separated	33	16.8	0	0.0
	widow/widower	11	5.6	16	9.6
Household size	small	122	62.2	116	69.9
	medium	70	35.7	44	26.5
	large	4	2.0	6	3.6
Monthly income	below 18,000	34	17.4	84	50.6
	18,001–55,000	102	52.0	66	39.8
	above 55,001	60	30.6	16	9.6
Educational status	no formal education	26	13.3	63	38.0
	primary school	75	38.3	89	53.6
	secondary school	82	41.8	14	8.4
	polytechnic/college of education	13	6.6	0	0.0
Occupation	unemployed	2	1.0	6	3.6
	farming	43	21.9	53	31.9
	civil servant	7	3.6	86	51.8
	self employed	144	73.5	21	12.7
Length of stay	1–5 years	51	26.0	55	33.1
	6–10 years	44	22.4	23	13.9
	11–15 years	65	33.2	54	32.5
	above 16 years	36	17.3	34	20.5

Tab. 3 Level of access to residential land.

Level of access to residential land	Men (N = 196)		Female (N = 166)	
	Frequency	Percentages	Frequency	Percentages
secure access	56	28.6	30	18.1
insecure access	140	71.4	136	81.9

(13.7%), and gift (6.2%). Similarly, among female respondents, the predominant method of land access was also purchase (31.0%), followed by government allocation (26.0%), community allocation (23.6%), inheritance (13.5%), and gift (5.8%). These findings suggest that, for both male and female respondents, land purchase constitutes the most prevalent means of accessing residential land in the study area. Although most male and female respondents have access to land through purchase, women may sometimes face significant barriers to accessing land, even

when it is acquired through purchase. This could stem from deeply ingrained gender norms and discriminatory customary laws in patriarchal societies that are emerging urban communities.

4.3 Factors associated with access to residential land

The varimax-rotated component matrix of factor analysis, reveals five extracted factors with eigenvalues greater than 1. Out of the 23 variables initially

Tab. 4 Gender distribution of the method of access to residential land.

Method land access	Male			Female		
	Responses		Percent of cases	Responses		Percent of cases
	N	Percent		N	Percent	
Inheritance	66	13.7%	33.8%	51	13.5%	32.7%
Gift	30	6.2%	15.4%	22	5.8%	14.1%
Government allocation	90	18.7%	46.2%	98	26.0%	62.8%
Community allocation	125	26.0%	64.1%	89	23.6%	57.1%
Purchase	170	35.3%	87.2%	117	31.0%	75.0%
Total	481	100.0%	246.7%	377	100.0%	241.7%

Note: Higher than the total survey because of multiple responses.

included, five components met the eigenvalue criterion. Additionally, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.627 for men and 0.683 for women, and Bartlett's test of sphericity was significant at $p < 0.000$. These results confirm that the data were suitable for principal component (factor) analysis. Factors with an eigenvalue greater than one were retained and named.

Results of the extracted factors in Tab. 5 reveal the significant component loadings of 0.50 and above that explain the underlying factors associated with access to residential land in the study area. The eigenvalues indicate the strength or importance of each factor, while the percentages of variance represent the amount of overall variation in responses explained by each factor. The factor with the highest eigenvalue

Tab. 5 Sorting and grouping of the extracted factors using the loading items and values for men and women.

Male					Women				
Renamed factors and list of variables	Loading variables	Eigen-value	% variance explained	Cumul. % variance explained	Renamed factors and list of variables	Loading variables	Eigen-value	% variance explained	Cumul. % variance explained
Factor 1 – Affordability		5.896	25.635	25.635	Factor 1 – Affordability		5.222	22.706	22.706
Price of residential land in relation to income of household	.963				Price of residential land in relation to income of household	.931			
Price of purchasing land	.957				Price of purchasing land	.931			
Financial condition	.955				Financial condition	.913			
Price of serviced residential land with convenient access to the road	.913				Price of serviced residential land with convenient access to the road	.833			
Factor 2 – Land availability		3.61	15.694	41.329	Factor 2 – Land availability		4.109	17.865	66.041
Residential land is not readily available	.827				Access road to available residential plots is in poor condition	.981			
Pressure on land used for residential purposes	.823				Purpose of acquiring the land	.981			
Size of residential land available (Plot size)	.694				Land conflict	.816			
Purpose of acquiring the land	.692				Pressure on land used for residential purposes	.690			
Access road to available residential plots is in poor condition	.642				Size of residential land available (Plot size)	.584			
Land conflict	.583								

Factor 3 – Procedural		2.875	12.501	77.357	Factor 3 – Security of tenure		3.263	14.185	36.891
Transparency in the process of acquiring land	.807				Type of land holding (private, communal, state, open)	.941			
Property right (Bundle of right)	.746				Land security without title documents	.913			
Bureaucratic bottleneck/protocols	.658				Traditional belief (Culture practices)	.794			
Cost of transaction	.640				Type of land tenure practices in this area	.723			
Difficulties with the land registration procedure	.727								
Factor 4 – Security of tenure		2.77	12.043	53.372	Factor 4 – Personal		2.802	12.186	78.227
Type of land holding (private, communal, state, open)	.935				Household size	.911			
Type of land tenure practices in this area	.924				Occupation	.696			
Land security without title documents	.864				Length of stay	.681			
Traditional belief (Culture practices)	.693				Income	.525			
Factor 5 – Personal attributes		2.641	11.484	64.856	Factor 5 – Procedural		2.596	11.285	48.176
Occupation	.859				Transparency in the process of acquiring land	.800			
Income	.784				Difficulties with the Land Registration Procedure	.799			
Length of stay	.601				Bureaucratic bottleneck/protocols	.679			
					Cost of transaction	.611			
Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. a. Rotation converged in 9 iterations.					Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. a. Rotation converged in 11 iterations.				

Tab. 6 Probit regression analysis of the associated factors and level of access to residential land for men and women.

Men					Women				
Associated factors	Coef.	Std. Err.	Z	P>z	Associated factors	Coef.	Std. Err.	Z	P>z
Affordability	-.3757162	.1120875	-3.35	0.001***	Affordability	.0482529	.1740624	0.28	0.082*
Land availability	-.3945553	.1174035	-3.36	0.001***	Security of tenure	.4041526	.1801170	2.24	0.025**
Security of tenure	.2159212	.0981845	2.20	0.028**	Procedural	-.887673	.2073862	-4.28	0.000***
Personal attribute	-.1309648	.1007507	-1.30	0.094*	Land Availability	-.5542318	.1505420	-3.68	0.000***
Procedural	.1390949	.0726016	1.92	0.050**	Personal attribute	.2265544	.1492997	1.52	0.029**
_cons	-.6822504	.1082790	-6.30	0.000	_cons	1.549946	.2391911	6.48	0.000
Number of observations = 196; Pseudo R2 = 0.5417; LR Chi-Square (5) = 33.24; Prob > Chi2=0.0000; Log Likelihood = -00.63998; *** Significant at 1% level, ** significant at 5% level					Number of observations = 166; Pseudo R2 = 0.6823; LR Chi-Square (5) = 59.97; Prob > Chi2=0.0000; Log Likelihood = -48.448041; *** Significant at 1% level, ** significant at 5% level, * significant at 10% level				

within the male category was affordability (5.861), next to this was land availability (3.610), procedural (2.875), security of tenure (2.77), and personal attributes (2.641). The percentages of the variance further

show that the key factors influencing men's access to residential land included: Affordability (25.64%), Land Availability (15.69%), Procedural (12.50%), Security of Tenure (12.04%), and Personal (11.48%)

factors. On the other hand, affordability has the highest eigenvalue among the female homeowners, next to this was land availability (4.109), security of tenure (3.263), personal attributes (2.802) and procedural (2.596). The percentages of the variance reveal that the key factors were: Affordability (22.71%), Land Availability (17.87%), Security of Tenure (14.19%), Personal (12.19%), and Procedural (11.29%). The combined factors explained 77.36% and 78.23% of the total variance for male and female respondents, respectively, reflecting a robust model appropriate for explaining factors associated with access to residential land among men and women in the study area. The findings suggest that financial considerations, land availability, procedural issues, and tenure security are central factors influencing land access for housing development among men. For women, financial considerations, land availability, tenure security, and personal characteristics emerged as the most influential, according to their respective levels of importance. It could be inferred that land access for housing development among male and female homeowners is affected by shared and distinct factors. While affordability and land availability are universal barriers, procedural, tenure, and personal factors affect male and female respondents differently.

Following the classification of factors influencing access to residential land, the extracted and renamed components were employed as independent variables in a binary probit regression analysis (Tab. 6). This regression model was used to determine the significance of these extracted factor scores in predicting respondents' level of land access (categorized as secure or insecure access). For male respondents, the diagnostic statistics presented in Tab. 6 indicate that the chi-square (LR) value is significant at the 1% level, confirming that the explanatory variables collectively influence access to residential land. The model's Pseudo R-squared value shows that 54.1% of the variation in access to residential land is explained by the independent variables. The signs of the coefficients indicate the direction of the relationship: a positive sign denotes an increase in the probability of the extracted factors in the level of access to residential land, while a negative sign implies a decrease.

The regression results show that the coefficients for affordability, land availability, and personal factors are negative and statistically significant, while those for security of tenure and procedural factors are positive and significant at the 1%, 5%, and 10% levels. Specifically, affordability (-0.3757), land availability (-0.3946), and personal factors (-0.1310) negatively influence access to residential land, indicating that lower affordability, limited land availability, and weaker socioeconomic status reduce men's likelihood of secure access. Conversely, the coefficients for tenure security (0.2159) and procedural factors (0.1391) are positively signed, implying that improvements in tenure security and procedural clarity increase the

probability of secure land access. This indicates that unaffordability and unavailability of land with lower socioeconomic status of the respondents, tend to reduce the level of access to residential land, while higher levels of tenure security and procedures of land transaction often increase the level of access to residential land among the male respondents. These findings align with the results reported by Oladehinde et al. (2023) and Omirin (2003).

In the case of female respondents, the diagnostic statistics also reveal a significant chi-square (LR) value at the 1% level, indicating that the explanatory variables jointly influence access to residential land. The model's Pseudo R-squared value of 59.9% reflects a good explanatory fit. The results show that land availability and procedural factors have negative and significant coefficients, while affordability, security of tenure, and personal factors are positively significant at the 1%, 5%, and 10% levels. Specifically, the coefficients for procedural (-0.8877) and land availability (-0.5542) factors suggest that limited land availability and bureaucratic barriers reduce the likelihood of secure land access for women. On the other hand, the coefficients for affordability (0.0483), security of tenure (0.4042), and personal factors (0.2266) indicate that increased financial capacity, secure tenure, and stronger socioeconomic status enhance women's access to residential land.

In summary, the study establishes that access to residential land is significantly influenced by a range of factors that differ in importance for men and women in urban border communities. For men, affordability, land availability, and personal characteristics act as barriers, while tenure security and procedural facilitate access. In contrast, women are more likely to gain secure access through affordability, tenure security, and personal capacity, but face constraints due to land availability and procedural complexity.

4.4 Correlation between socio-economic characteristics of men and women and factors associated with accessibility to residential land

The analysis in Tab. 7 revealed significant relationships between the extracted factor scores (affordability, land availability, tenure security, and ease of transaction) and the socio-economic characteristics of male and female homeowners (age, income, educational qualification, occupation, and length of stay) in the study area. For male homeowners, correlations were predominantly positive. Affordability was significantly correlated with religion ($r = .193$), household size ($r = .239$), income ($r = .313$), and occupation ($r = .205$). Land availability showed significant positive correlations with educational qualification ($r = .207$) and occupation ($r = .174$). Tenure security was significantly associated with age ($r = .392$), occupation ($r = .205$), and length of stay ($r = .340$), while ease of transaction correlated positively with religion

($r = .287$), household size ($r = .254$), and length of stay ($r = .155$).

Conversely, results for female homeowners revealed predominantly negative correlations, with the exception of length of stay. Affordability exhibited negative correlations with marital status ($r = -.192$), household size ($r = -.235$), and income ($r = -.180$), but a positive correlation with length of stay ($r = .182$). Land availability showed negative correlations with religion ($r = -.397$), marital status ($r = -.208$), household size ($r = -.178$), income ($r = -.189$), and educational qualification ($r = -.355$), but a positive correlation with length of stay ($r = .208$). Tenure security was negatively associated with occupation ($r = -.276$), while ease of transaction showed negative correlations with age ($r = -.317$), religion ($r = -.355$), marital status ($r = -.313$), household size ($r = -.194$), income ($r = -.262$), and occupation ($r = -.268$) at the 0.05 significance level.

The findings show that access-related land factors of male homeowners are positively influenced by socio-economic variables, while female homeowners experience predominantly negative associations, particularly with marital status, household size, and income, with the exception of longer residence duration, which enhances their access.

5. Discussion

Findings on the factors associated with access to land for residential development reveal that financial considerations, land availability, procedural issues, tenure security, and personal attributes were central to land access for housing development among men. Among women, financial considerations, land availability, tenure security, personal attributes, and procedural factors were identified based on their order of importance. Financial considerations emerged as the most influential factor for both men and women. This is largely because residential land typically goes to the highest bidder, and the urban poor often acquire land through informal channels. Land in the informal market is not regulated by government authorities, and prices are typically dictated by informal market forces. This finding aligns with the work of Babatunde (2014), who noted that residents often purchase land through informal markets. It also supports Nwuba et al. (2015), who asserted that land price significantly determines access to urban residential land. Furthermore, it corroborates Aluko et al. (2004), who observed that the cost of acquiring land in informal urban markets can be up to four times higher than in formal markets. Land availability was the second most important factor for both men and women. Access cannot occur without land being available, and limited availability undermines sustainable housing development in urban border areas. As previously established, informal institutions are the

primary providers of residential land, particularly for the urban poor in border communities. Women assign greater importance to land availability, possibly due to limited access routes, cultural restrictions, or exclusion from inheritance. While men may navigate scarcity through formal transactions, women often depend on communal access or spousal/familial rights, making perceived availability more critical. This finding is consistent with Lawal and Adekunle (2018), who highlighted that an adequate supply of land is a prerequisite for sustainable housing delivery. Similarly, Oyedemi (2018) identified land availability as the second most influential factor, after affordability. Oyedemi (2018) further noted that increased land availability reduces competition and incidences of title forgery.

Procedural was the third factor among men, while tenure security was the third among women, suggesting gender-based differences in residential land access. The reason for this could be due to cultural issues, such as norms, customs, and traditions that tend to favour men in land acquisition. Procedural factors – including bureaucratic delays, complex registration processes, and high transaction costs – are major barriers for men. Men are often affected by bureaucratic hurdles such as documentation, titling, and institutional corruption – likely because they engage more directly with formal land acquisition systems. Women may not be affected by such procedures or access land through informal channels, where procedural issues are less pronounced. On the other hand, tenure security was more significant among women. Tenure security is a greater concern for women, reflecting social vulnerability and exclusion from legal land ownership in many traditional systems. Insecure tenure affects women in several ways: (1) they often lack confidence in their land rights, (2) they typically hold secondary rights that are not formally recognized, and (3) their rights are frequently not protected from forced eviction. Security of tenure and personal attributes were the fourth factor among men and women, respectively. Security of tenure affects land access among men due to informal market constraints, insecure tenure and title, stringent titling procedures, among others. This study corroborates the studies of Oladehinde et al. (2017), Aluko and Amidu (2006), and Ajayi and Adebayo (2017) in this regard. In contrast, personal attributes that affect women's land access could be due to the low socioeconomic status of women compared to men. Low socioeconomic status, such as low monthly income, informal employment, is more prevalent among women, limiting their ability to independently finance land acquisition. Consequently, many women depend on their husbands for land access. Personal attributes and procedures were the least factors hindering land access among men and women, respectively. While the literature (Oladehinde et al. 2023; Owioye and Adedemi 2015; Omirin 2003; Adekola et al. 2013) has identified a variety of factors influencing

Tab. 7 Pearson correlation analysis of the relationship between personal characteristics and factors associated with residential land access for men and women.

		Male				Female			
		Afford-ability	Land availability	Tenure security	Ease of transaction	Afford-ability	Land availability	Tenure security	Ease of transaction
Age	Pearson correl.	.081	.068	.392**	-.057	-.126	-.095	.106	-.317**
	Sig. (2-tailed)	.259	.342	.000	.425	.104	.222	.176	.000
	N	196	196	196	196	166	166	166	166
Religion	Pearson correl.	.193**	-.058	-.080	.287**	.118	-.397**	-.037	-.355**
	Sig. (2-tailed)	.007	.422	.267	.000	.130	.000	.637	.000
	N	196	196	196	196	166	166	166	166
Marital status	Pearson correl.	.021	-.098	.027	.023	-.192**	-.208**	.094	-.313**
	Sig. (2-tailed)	.771	.170	.704	.750	.013	.007	.227	.000
	N	196	196	196	196	166	166	166	166
Household size	Pearson correl.	.239**	.127	.139	.254**	-.235**	-.178**	.026	-.194**
	Sig. (2-tailed)	.001	.075	.052	.000	.002	.022	.740	.012
	N	196	196	196	196	166	166	166	166
Monthly income	Pearson correl.	.313**	.086	.074	-.041	-.180**	-.189**	.059	-.262**
	Sig. (2-tailed)	.000	.231	.302	.566	.020	.015	.452	.001
	N	196	196	196	196	166	166	166	166
Educational qualification	Pearson correl.	.070	.207**	.037	.023	.083	-.355**	.102	-.142
	Sig. (2-tailed)	.329	.004	.609	.753	.286	.000	.191	.068
	N	196	196	196	196	166	166	166	166
Occupation	Pearson correl.	.205**	.174**	.205**	.139	.040	.021	-.276**	-.268**
	Sig. (2-tailed)	.004	.015	.004	.052	.612	.786	.000	.000
	N	196	196	196	196	166	166	166	166
Length of stay	Pearson correl.	.106	-.132	.340**	.155**	.182**	.208**	-.110	.046
	Sig. (2-tailed)	.138	.065	.000	.030	.019	.007	.159	.560
	N	196	196	196	196	166	166	166	166

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

land access, this study highlights that their importance varies by gender in the study area.

The study further reveals significant gender-based differences in how socio-economic characteristics influence access to residential land among male and female homeowners in the study area. For male homeowners, correlations between factor scores (affordability, land availability, tenure security, and ease of transaction) and socio-economic variables were predominantly positive, indicating that improvements in socio-economic status – such as higher income, better occupation, education, and longer residence – enhance men's capacity to secure land. For instance, affordability strongly correlated with income and occupation, suggesting that men with greater financial resources or better jobs are more able to afford land. Tenure security also increased with age and length of stay, reflecting the cumulative advantage men gain over time through social capital and familiarity with local land networks. In contrast, female homeowners displayed predominantly negative

correlations, except for length of stay, which showed a positive relationship. For example, affordability was negatively correlated with marital status and household size, suggesting that women's access to affordable land decreases as household responsibilities and marital dynamics intensify. Similarly, land availability was negatively correlated with religion and education, implying that cultural and religious norms, rather than empowering women, often restrict their opportunities to acquire land even when they are educated. The negative correlations for income also suggest that increased earnings do not necessarily translate to improved land access for women, possibly due to entrenched gender biases in customary and informal land markets that prioritize male dominance.

These variations arise primarily from structural and cultural inequalities embedded in the land tenure systems of border communities. Men benefit from patriarchal norms that privilege male ownership and inheritance, enabling positive outcomes as their socio-economic status improves. Conversely,

women face systemic barriers such as customary laws, religious restrictions, and gendered social roles that constrain their land access regardless of improvements in income, education, or occupation. The only variable showing consistent positive effects for women is length of stay, highlighting the importance of social integration and long-term residency in gradually improving women's claims to land. This supports the assertions of Budlender et al. (2011) and Oladehinde et al. (2024), who observed that women often depend on their husbands to access land, making marriage a key mediating institution in secure access to residential land. This also agrees with the submission of Lawanson (2010), who noted that women's relative powerlessness both economically and politically in a typical African setting limits their control over resources, particularly residential land, and also that male superiority and dominance over resources in Nigeria originated from historically rooted culture and religion. These findings support earlier assertions by Ajayi and Adebayo (2017) and Adekola et al. (2013), who also noted that land access is affected by different factors, and these factors vary among men and women. The underlining causes of these variation between men and women according to Cotula and Mathieu (2008), Toulmin (2009), Oladehinde et al. (2024) could be attributed to difference in socio-cultural norms which make land in many Nigeria communities to be patrilineal; gendered roles and responsibilities which make women to be traditionally tasked with caregiving and domestic roles, limiting their participation in land transactions and men as family providers, legitimizing their land ownership in both customary and formal systems; and legal and institutional barriers which may not support women's land claims, due to lack of enforcement, gender-insensitive policies.

6. Conclusion and recommendations

The study has investigated the factors influencing access to residential land in urban border communities of Imeko Afon Local Government Area, Ogun State, Nigeria, through a gendered lens. The findings reveal that a greater proportion of female respondents experience insecure access to land compared to their male counterparts, indicating that women are more land-insecure than men. This disparity has significant implications for sustainable housing development for both genders. The study showed that shared and distinct factors affected men and women in accessing land for housing development. Affordability and land availability were universal barriers, while procedural, tenure and personal factors affect men and women differently. Addressing these gendered differences is essential for equitable, inclusive housing and land development policies. It was observed through the use of binary probit regression that access to residential

land is significantly influenced by the extracted factor scores of men and women in urban border communities. For men, lower levels of affordability, limited land availability, and weaker socioeconomic status tend to reduce their likelihood of access to residential land, while improvements in tenure security and procedural conditions often increase the probability of land access among men. In contrast, limited land availability and bureaucratic barriers tend to reduce the likelihood of access, while increase in financial capacity, tenure security, and stronger socioeconomic status enhance women's access to residential land. It was established from Pearson correlation that socio-economic characteristics of men influence access to residential land, while women's access is shaped differently, with some key socioeconomic variables negatively affecting their ability to access land. Socioeconomic status of women sometimes may not guarantee land rights due to systemic, cultural, and institutional barriers. The study concluded that access to land for residential development is influenced by different factors, and these factors significantly influence the level of access among men and women. These factors make residential land physically unavailable due to high cost, insecure tenure, procedural, and personal issues.

While this study provides valuable insights into the gendered dimensions of land accessibility in urban border communities, further research is necessary. Future studies should incorporate additional variables to better understand the dynamics of land access for residential development. Comparative studies across international border communities in sub-Saharan Africa are particularly recommended, as the factors influencing land access in West Africa may differ from those in other regions due to variations in cultural norms, political systems, and geographic contexts.

Despite these limitations, the findings of this study contribute meaningfully to the existing literature and offer practical implications for policy and sustainable housing development. First, the study underscores the need for gender equity in residential land access. Differences in socioeconomic status of men and women may further increase the disparity in their land access. Efforts should be made to start gender-based empowerment programs that will increase job prospects and enhance the quality of life for urban residents. Second, the study can help to inform policy implementation around the issues of access to land for residential development, not only in urban border region of Nigeria but also in urban border regions of other developing countries in support of SDGs 1 and 5 for reducing poverty and ensuring gender equality regarding rights and control over land resource. These initiatives should take into consideration the factors of affordability, availability, security of tenure, procedural, and personal attributes. In addition to this are the deep-rooted customs and traditions in the

border regions of Nigeria that increase discrimination against women. Gender based policies and programs that address the problems of land accessibility (such as tenure insecurity, lack of land title, bureaucratic delay, difficulty in the land registration procedure, insecure land rights, high cost of transaction, among others), especially among low-income men and women, should be formulated and implemented. This will further help in ensuring that land law guarantees equitable land management in protecting the rights of vulnerable men and women in the study area.

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