

Factor Analysis of the Influence of Institutions (Afe Babalola University Ado-Ekiti and Federal Polytechnic Ado-Ekiti) on Residential Land Uses Along Federal Polytechnic Road, Ado-Ekiti, Ekiti State, Nigeria

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Abstract

Tertiary institutions are major drivers of urban change influencing housing demand, land markets, including settlement patterns in their host communities. Thus, the rapid growth of universities and polytechnics in Nigeria has amplified these effects, especially in peri-urban areas. Hence, this study investigated the influence of two major tertiary institutions; Afe Babalola University Ado-Ekiti (ABUAD) and the Federal Polytechnic Ado-Ekiti (FPA) on residential land uses along the Federal Polytechnic Road corridor in Ado-Ekiti, Ekiti State, Nigeria. The research employed a survey approach with 375 respondents selected through stratified random sampling. Data were analyzed using descriptive statistics and Factor Analysis. Results showed that institutional presence significantly affects the urban housing structure, leading to increased demand for student accommodations, rising rental values, transformation of family homes into hostels, and a general shift from agricultural to residential land uses. The results of the Factor analysis showed that five (5) major components were extracted, namely; institutional influence, socioeconomic impacts, physical and environmental pressure, market dynamics and land transition which explain over 70% of the variance in observed influences on residential land uses. The study concluded that while the institutions stimulate real estate developments and economic activities; they also present challenges such as overcrowding, informal housing, and land speculation. Thus, the research recommended integrated urban planning, stronger regulatory frameworks, and institutional collaboration with local authorities to promote sustainable development in the study area.

Keywords: Land Use, Residential Land Use, Tertiary Institutions, Student Housing, Land Use Change

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I. Introduction

Land is a finite and immovable resource which forms the cornerstone of human settlement, economic activity, and socio-political organization. Its allocation and utilization patterns are largely shaped by the dynamic interaction between population pressures, institutional presence, and government policy, particularly within urban environments (Nwokoro & Okonkwo, 2019; Aluko, 2020). Consequently, educational land uses is amongst the most influential land use determinants in modern urban settings whose spatial and socioeconomic impacts extend beyond academic precincts into broader urban ecosystems. It suffices to note that in rapidly urbanizing countries like Nigeria, the proliferation of higher educational institutions has been strongly correlated with significant transformations in residential land use, infrastructure demand, and socio-economic development (Olawole & Akinbamijo, 2022).

Ado-Ekiti, the capital of Ekiti State in Southwestern Nigeria, exemplifies this trend; hence its selection as a case study. Historically a quiet administrative and agricultural town, Ado-Ekiti has evolved into a fast-growing urban center, driven in part by the establishment of two prominent tertiary institutions: Afe Babalola University Ado-Ekiti (ABUAD) and the Federal Polytechnic, Ado-Ekiti (FPA). These institutions are located along the bustling Federal Polytechnic Road corridor and have significantly shaped the character and development trajectory of the area. Thus, what was once a relatively undeveloped stretch of land is now a lively zone characterized by rapid residential expansion, commercial growth, and infrastructural activities. The growth of these institutions has brought about a noticeable transformation in land use, especially in terms of housing development, as the need for student accommodation and staff housing continues to rise (Adebayo & Iweka, 2021; Ogundele, Ayoola, & Aluko, 2023).

It is therefore pertinent to note that the availability of residential land uses in proximity to tertiary institutions is vital for supporting the daily lives of the academic community. Such land use ensures proximity to

lecture halls, laboratories, offices, and libraries, thereby reducing transportation costs and improving academic engagement. Accordingly, an array of residential property types have emerged around ABUAD and FPA which includes a mix of self-contained apartments, rooming houses, student hostels, private bungalows, and informal housing arrangements. Each of these caters to different segments of the population, from students and academic staff to service workers and landlords seeking rental income. As a result, the demand for such housing options grows, resulting in considerable increases in land values in the area and subsequent encouragement of more real estate investment and land speculation (Akinmoladun&Oluwoye, 2020; Olanrewaju & Lawal, 2022). Accordingly, Onokerhoraye (2020) noted that these developments have continued to expand in a largely uncoordinated manner, raising concerns about planning, infrastructure, and sustainability.

Nonetheless, several factors influence the development and expansion of residential properties in close proximity to institutions like ABUAD and FPA. Prominent amongst these is accessibility which is basically linked to the desire to live within walking or short commuting distance to the school. More so, the availability of land, especially vacant plots along arterial roads, also makes the area attractive for developers. In addition, Ezeokoliand Ayedun (2022) noted that economic incentives such as high rental returns and capital appreciation entice private individuals and corporate investors to build or convert existing properties for student accommodation. Furthermore, ABUAD's strict on-campus housing policies and the Federal Polytechnic's growing student population have contributed to differing patterns of off-campus housing demand in the surrounding areas (Adedokun & Aina, 2019).

While the growth in residential land use near these institutions presents many advantages, it also brings a host of challenges. One major issue is overcrowding, as the influx of people exceeds the carrying capacity of existing infrastructure. Drainage systems, roads, and public utilities are often stretched beyond limit, leading to environmental degradation and declining living conditions (Olawole& Akinbamijo, 2022). Also, informal settlements and unregulated constructions have become common, as some landlords prioritize profit over safety and proper development control. Nwokoro and Okonkwo (2019) also asserted that land conflicts, tenure insecurity, and haphazard land conversion from agricultural or forest land to residential use are increasingly frequent in such areas which is further exacerbated by the lack of coherent zoning and enforcement by planning authorities thus creating a chaotic urban landscape with mixed and conflicting land uses.

Despite these challenges, there is a noticeable research gap in understanding the specific ways in which institutions like ABUAD and FPA shape residential land uses in Ado-Ekiti. Most existing studies tend to focus on larger urban centers or treat institutional influence as a secondary concern. This study seeks to fill that gap by applying a factor analytical approach to investigate the underlying variables that drive residential land use changes along Federal Polytechnic Road. Through this method, the research aims to identify the most significant factors that explain the current patterns of residential development in the area. Thus providing a clearer picture of how institutions shape their environment and how urban planning can respond more effectively to these dynamics.

Given these dynamics, it becomes imperative to interrogate the specific ways in which tertiary institutions shape the residential landscape of their host communities. This study, therefore, seeks to answer the following key questions: What types of residential land uses are found in proximity to ABUAD and FPA? What are the estimated annual rental values of the different residential property types in the area? How have land conversion and intensity trends evolved between 2014 and 2024? And finally, what is the perceived influence of ABUAD and FPA on residential land uses along the Federal Polytechnic Road in Ado-Ekiti? Together, these inquiries provide a holistic understanding of how institutional growth drives urban transformation in Ado-Ekiti.

II. Literature Review

Concept of Tertiary Institutions

Tertiary institutions are widely recognized as post-secondary education establishments responsible for advanced teaching, learning, and research. According to Adegbite and Olayemi (2019), tertiary institutions encompass universities, polytechnics, and colleges of education that foster human capital development and innovation in society. Aina and Bello (2020) also described tertiary institutions as critical agents of social transformation and economic development due to their ability to generate knowledge, train professionals, and catalyze urban growth. The presence of such institutions often has spatial implications, influencing both the built and social environments surrounding them. In urban and regional planning literature, these institutions are acknowledged as pivotal land use actors whose physical expansion and demographic impacts significantly alter the land use structure of their host communities.

Concept of Residential land Use

Residential land use, on the other hand, refers to the portion of land allocated primarily for housing purposes. It includes various housing typologies such as single-family dwellings, multifamily apartments, student hostels, and informal housing units. As defined by Onokerhoraye (2020), residential land use reflects the

spatial organization of human habitation and is directly affected by population growth, economic forces, institutional presence, and land tenure systems. Olanrewaju and Lawal (2022) also argued that residential land use near tertiary institutions tends to be more dynamic, fragmented, and market-driven due to the continuous demand for off-campus accommodation and the commercialization of housing in such corridors. It is in these transitional zones between institutional and residential land uses that unique urban challenges and opportunities emerge, warranting targeted study and policy intervention.

III. Literature Review on the Influence of Tertiary Institutions on Land Use

Adedokun and Aina (2019) examined the impact of Obafemi Awolowo University, Ile-Ife on urban development. Using a mixed-method approach combining household surveys and GIS mapping; the findings revealed that the university significantly influenced residential land use through increased demand for student accommodation and land value appreciation in surrounding communities. However, their study was limited to a single public university and did not explore the interplay of multiple institutions or the statistical factors influencing land use patterns, which this current research addresses.

Bello and Omotayo (2020) analyzed student housing patterns in Osogbo using surveys and spatial mapping. They observed a shift from traditional family housing to purpose-built student hostels. This study supports the argument that institutional presence shapes housing typologies, but did not consider the cumulative impact of multiple institutions. In another study, Usman and Adamu (2020) explored land use conversion in Zaria and discovered that Ahmadu Bello University influenced residential-to-commercial conversion in its host communities. While relevant, their focus was more on commercial land use than residential expansion, leaving a gap this research addresses. Furthermore, Okonkwo et al. (2020) examined the effect of institutional development on peri-urban settlement in Anambra using focus groups and surveys. The study concluded that educational institutions are "growth poles" but noted the absence of integrated planning to support residential expansion. This aligns with this current research, which seeks to offer a more data-driven explanation using factor analysis. In a study by Akinmoladun and Oluwoye (2020), titled "*Institutions and Residential Land Transformation in Nigeria*", a longitudinal data approach was adopted and the research discovered that growth in institutional population was a primary driver of land conversion and residential restructuring in host communities. Although comprehensive, their research did not apply factor analysis to isolate specific variables influencing land use change, nor did it consider the peculiar urban dynamics of Ado-Ekiti. The current study therefore expands this discourse by applying a statistical framework to examine how multiple latent factors contribute to observed residential land use patterns near ABUAD and FPA.

Adebayo and Iweka (2021) in their study on urban expansion and land use change in Ado-Ekiti, employed satellite imagery and GIS techniques to map growth patterns over a decade. Their findings revealed that the Federal Polytechnic axis experienced significant residential densification due to institutional pull. However, they did not disaggregate the specific institutional factors responsible for this pattern. Also, Fagbohun and Ogunleye (2021), in their analysis of land use pressure in peri-urban Lagos, used structured questionnaires and regression analysis to examine how institutions affect housing demand. Their study indicated that institutions act as catalysts for population inflow and speculative housing development. The study, however, focused on Lagos and did not assess mid-sized towns like Ado-Ekiti. Furthermore, Akinola and Olajide (2021) studied land tenure and informal residential growth in southwestern Nigeria using qualitative interviews. They found that the lack of clear zoning laws around institutions encourages disorderly residential development. Although the study highlighted tenure insecurity, it lacked statistical rigor, which this research intends to address through factor analysis.

Ogunbiyi and Adeyemi (2021) investigated how private Universities in Nigeria, such as Babcock University, contribute to suburban housing patterns. Their results revealed that private institutions often drive up housing demand but may limit access for low-income earners. The research did not involve public institutions, a gap this study bridges by analyzing both private and public institutions jointly. In another study, Akintunde and Alade (2022), through a spatial analysis of Akure's FUTA corridor, found a strong spatial association between the location of the university and the rise in residential property prices. However, their study emphasized land values without adequately linking infrastructural and institutional variables. Olaniyan and Fasoranti (2022) analyzed land use conflicts around institutions in Ekiti State. Their research highlighted growing tensions between landlords and local planning authorities over unapproved conversions. While relevant, the study focused on conflict rather than spatial transformation drivers.

Ezeokoli and Ayedun (2022), in their paper "The Impact of Higher Institutions on Peri-Urban Land Use Development in Nigeria: A Study of Covenant University, Ota" employed a case study approach and structured interviews with estate developers and planning officials. They found that institutional expansion contributed to peri-urban residential development, although challenges like informal settlements and infrastructural strain were prevalent. While their research explored institutional impacts, it focused largely on private universities and omitted a detailed statistical classification of driving factors, unlike the factor analysis

proposed in this study. More so, Adefolarin and Salawu (2023) assessed student housing stress in Ibadan using a combination of field surveys and planning data. They highlighted issues of affordability, overcrowding, and land speculation. Although insightful, the research was limited to urban stress and not the broader spatial transformation around institutions. Furthermore, Olawole and Akinbamiyo (2022) studied urban housing transformation in University towns and applied qualitative interviews and land use inventory techniques to examine how university students shape housing demand. The study was conducted in Ibadan and highlighted the emergence of mixed-use developments and increased conversion of family homes to rental units. Nevertheless, their research focused on university towns without incorporating polytechnics or analyzing how multiple institutions collectively influence a corridor. This current research addresses that gap by evaluating both a private university and a federal polytechnic in a shared urban space, providing a comparative and more holistic view.

Ogundele, Ayoola, and Aluko (2023), utilized geospatial techniques and land market data to analyze how tertiary education zones in southwestern Nigeria influence land use change. Their findings demonstrated a strong correlation between institutional expansion and residential land value shifts. However, the study primarily centered on metropolitan regions and emphasized market dynamics over the social or policy-based influences shaping residential patterns. The current study diverges by incorporating not only market factors but also infrastructural, demographic, and institutional variables, particularly within the relatively smaller urban context of Ado-Ekiti.

While existing literature provides useful insights into the general influence of tertiary institutions on land use, most studies tend to focus on single institutions or urban centers with pre-existing metropolitan status. Few studies investigate dual-institution zones or mid-sized state capitals like Ado-Ekiti. Moreover, there is limited use of quantitative techniques such as factor analysis to systematically examine the underlying drivers of residential land use transformation in these areas. This research fills that gap by adopting a factor analysis method to identify, categorize, and interpret the influence of institutional, infrastructural, and economic factors on residential land use along the Federal Polytechnic Road corridor in Ado-Ekiti.

Theoretical Underpinning

The theoretical basis for this study is grounded in the Urban Land Use Theory, particularly the bid-rent theory as proposed by Alonso (1964). This theory posits that land use is a function of accessibility and economic competition, where different land users are willing to pay different rents based on their proximity to a central point of activity in this case, tertiary institutions. In the context of Ado-Ekiti, land closer to ABUAD and FPA commands higher value due to its attractiveness to students, landlords, and service providers. As such, the bid-rent framework helps to explain why residential land use intensifies near these institutions.

Additionally, the study draws on Concentric Zone Theory by Burgess (1925), which suggests that urban areas develop in concentric rings, with certain land uses clustering in proximity to institutional and commercial cores. ABUAD and FPA have emerged as such cores in Ado-Ekiti, thereby influencing the spatial organization of residential developments around them. These theories provide a useful lens through which the spatial pattern of residential land use and the competition for land near institutions can be analyzed.

Furthermore, Growth Pole Theory, which views institutions as catalysts for regional development, supports this study's premise that tertiary institutions are not only educational centers but also anchors of urban expansion. This theoretical perspective reinforces the argument that understanding the nature and extent of institutional influence is essential for effective land use planning and urban policy formulation.

IV. Methodology

The study was conducted along the Federal Polytechnic Road corridor in Ado-Ekiti, Ekiti State, Nigeria an urbanizing axis influenced significantly by the presence of Afe Babalola University Ado-Ekiti (ABUAD) and the Federal Polytechnic Ado-Ekiti (FPA). Located at approximately 7.623°N and 5.220°E, Ado-Ekiti is the administrative and educational hub of the state, with both institutions stimulating extensive residential land development. ABUAD, situated at the outskirts, has spurred growth in areas like Ilawe Road and Ajobamidele, while FPA, closer to the city center, has influenced dense housing in Odo-Ado and Aare.

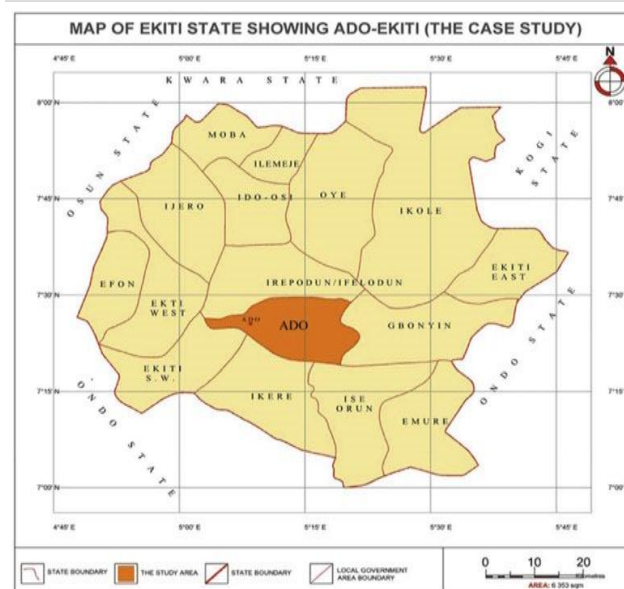


Fig 1: Map of Ekiti State Showing Ado-Ekiti, the study area where the two Institutions are located.
Source: Google map, 2025.

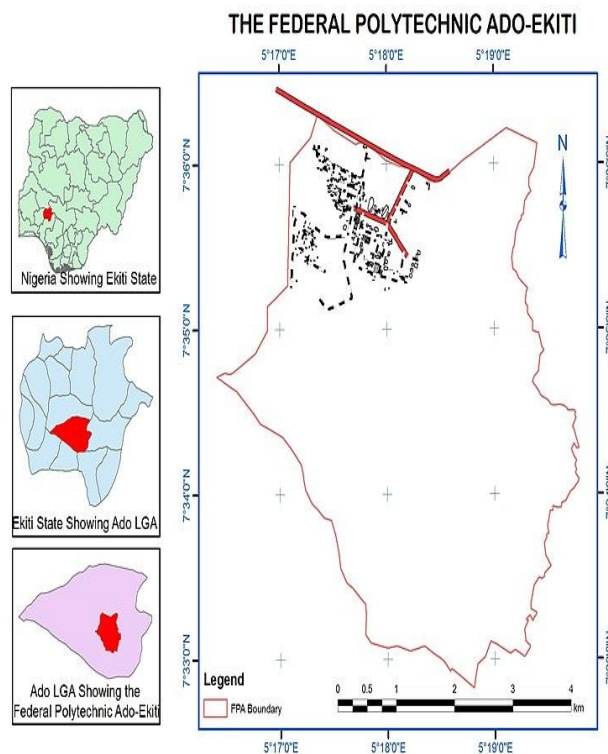


Fig 2: Map of the Federal Polytechnic Ado-Ekiti
Source: Federal Polytechnic Ado-Ekiti, 2025



Fig 3: Afe Babalola University Ado-Ekiti (ABUAD)
 Source: Afe Babalola University Ado-Ekiti (ABUAD) 2025

The research adopted a descriptive design utilizing quantitative approach to assess how institutional presence affects residential land use. The target population comprised students, landlords, residents, staff, and urban development stakeholders within a 5-kilometer radius of the two institutions. Based on informal surveys and local planning data, including reports from the Ekiti State Ministry of Physical Planning and Urban Development (2022) and Ado-Ekiti Master Plan (2017–2030), the estimated population was 6,750; 3,400 from the ABUAD zone and 3,350 from the FPA zone. Using a purposive sampling technique, 200 respondents were sampled from both zones respectively while 189 respondents from the ABUAD zone and 186 from the FPA zone were retrieved. Primary data were obtained through structured questionnaires while descriptive statistics were used to summarize the data and Factor Analysis used to identify the underlying factors influencing residential land use.

Data Analysis

The analysis of the data collected were analysed and presented in the tables below:

Table 1: Types of Residential land Use in Close Proximity to ABUAD

Residential Land Use Types	Mostly Available	Available	Undecided	Unavailable	Mostly Unavailable	Weighted Mean	Std. Dev	Rank
Student hostels (private)	102	58	10	12	7	4.25	1.06	1
Purpose-built student lodges	88	59	18	15	9	4.07	1.14	2
Mini flats (1-bedroom apartments)	75	70	20	15	9	3.99	1.12	3
Mixed-use buildings (residential + shops)	55	60	25	31	18	3.54	1.32	4
Rooming houses (face-me-I-face-you)	40	66	22	39	22	3.33	1.33	5
Detached bungalows	32	44	38	45	30	3.02	1.34	6
Short-let apartments / Airbnb	30	50	31	47	31	3.01	1.34	7
Duplexes (2+ bedroom stand-alone homes)	29	38	33	50	39	2.83	1.37	8
Gated estates / staff quarters	20	36	42	55	36	2.73	1.26	9
Uncompleted residential structures	22	40	27	52	48	2.66	1.36	10

Source: field survey, 2025

The findings from Table 1 show that residential land use within ABUAD is overwhelmingly student-driven. The highest mean scores were recorded for private student hostels (Mean = 4.25, Rank 1), purpose-built student lodges (Mean = 4.07, Rank 2), and mini flats (Mean = 3.99, Rank 3), confirming that housing development in the area is primarily tailored toward students. This reflects the demographic dominance of the

university community, consistent with Olanrewaju et al. (2018), who noted that student populations significantly shape housing markets around Nigerian universities.

Moderately ranked categories such as mixed-use buildings (Mean = 3.54) and rooming houses (Mean = 3.33) indicate adaptive land use strategies. Mixed-use developments highlight the integration of residential and commercial functions to meet students’ demand for convenience, a pattern observed by Aluko (2011) in Nigerian tertiary environments. Rooming houses remain present but are declining in preference compared to self-contained units.

Lower ranked housing types including detached bungalows (Mean = 3.02), short-let apartments (Mean = 3.01), duplexes (Mean = 2.83), and gated estates/staff quarters (Mean = 2.73) which suggested a neglect of staff and family-oriented housing. Ibem and Aduwo (2013) attribute this imbalance to developers’ preference for the more profitable student market. The limited presence of short-let facilities also points to an untapped opportunity, as Agboola (2021) and Ojo (2022) have noted their growing importance in Nigerian cities. Finally, the lowest-ranked category, uncompleted structures (Mean = 2.66), suggests relative stability in ABUAD’s property market, where projects are more likely to be completed due to strong rental demand. This finding aligns with Ukaegbu (2019), who observed that consistent student demand reduces the incidence of abandoned developments in university towns.

In summary, the residential land use pattern around ABUAD is dominated by student housing, with limited provision for staff, families, and hospitality-oriented residences. While this reflects immediate market realities, it also points to the need for a more balanced housing strategy that accommodates multiple population groups and leverages emerging opportunities in mixed-use and short-let housing.

Table 2: Types of Residential land Use in Close Proximity to FPA

Residential Land Use Types	Mostly Available	Available	Undecided	Unavailable	Mostly Unavailable	Weighted Mean	Std. Dev	Rank
Student hostels (private)	86	59	13	18	10	4.04	1.18	1
Mini flats (1-bedroom apartments)	70	66	24	18	8	3.92	1.13	2
Purpose-built student lodges	74	60	22	18	12	3.89	1.21	3
Rooming houses (face-me-I-face-you)	66	72	20	17	11	3.89	1.16	4
Mixed-use buildings (residential + shops)	61	62	22	24	17	3.68	1.30	5
Detached bungalows	45	59	28	34	20	3.40	1.32	6
Duplexes (2+ bedroom stand-alone homes)	32	45	34	41	34	3.00	1.37	7
Gated estates / staff quarters	28	37	44	41	36	2.89	1.34	8
Uncompleted residential structures	25	42	28	47	44	2.77	1.38	9
Short-let apartments / Airbnb	21	38	35	51	41	2.72	1.32	10

Source: field survey, 2025

The results from Table 2 further showed that the most available residential types around FPA are student-oriented, with private hostels ranking first (Mean = 4.04), followed by mini flats (Mean = 3.92) and purpose-built student lodges (Mean = 3.89). Rooming houses (“face-me-I-face-you”) also ranked highly (Mean = 3.89, Rank 4), indicating their continued relevance within the FPA environment. This dominance of student-focused housing reflects the influence of the institution on the local housing market, corroborating Olanrewaju et al. (2018), who argue that Nigerian polytechnics and universities drive demand for hostels and affordable one-room units.

Moderately available housing types include mixed-use buildings (Mean = 3.68) and detached bungalows (Mean = 3.40). Mixed-use buildings highlight the adaptive strategy of integrating retail functions into residential structures, consistent with Aluko (2011), who observed similar patterns around Nigerian tertiary institutions where students create demand for nearby services. Detached bungalows are less common, suggesting that family-oriented housing is underrepresented compared to student-focused developments.

Lower ranked housing options include duplexes (Mean = 3.00), gated estates/staff quarters (Mean = 2.89), and uncompleted structures (Mean = 2.77). Their limited presence points to a lack of higher-income or staff-focused residences, a gap also identified by Ibem and Aduwo (2013), who noted that private developers often neglect staff and family housing in favour of more profitable student markets. Interestingly, uncompleted structures ranked relatively low, implying a fairly stable property development climate in the FPA axis.

The least available housing type is short-let apartments and Airbnb facilities (Mean = 2.72, Rank 10). This suggests that hospitality-oriented housing is still at an early stage of development within the FPA environment. However, as Agboola (2021) and Ojo (2022) argue, the short-let market is expanding across Nigeria, pointing to potential opportunities for diversification in the future.

In summary, residential land use around ABUAD and FPA is dominated by private hostels, mini flats, and low-cost rooming houses, reflecting the student population as the primary determinant of housing supply. While mixed-use developments are emerging, staff housing, family residences, and hospitality-oriented accommodation remain underdeveloped. This one-sided focus on student housing meets immediate demand but raises questions about inclusivity and sustainability in the long-term growth of the FPA environment.

Table 3: Estimated Annual Rental Values (₦'000) of Residential Property Types Along Polytechnic Roads, Ado-Ekiti (2014–2024)

Year	Student Hostels	Rooming Houses	Mini Flats	Detached Bungalows	Mixed-Use Buildings	Gated Estates	Student Lodges
2014	₦80,000	₦60,000	₦100,000	₦150,000	₦130,000	₦180,000	₦120,000
2015	₦85,000	₦63,000	₦107,000	₦158,000	₦137,000	₦192,000	₦127,000
2016	₦90,000	₦67,000	₦115,000	₦166,000	₦144,000	₦205,000	₦135,000
2017	₦96,000	₦70,000	₦123,000	₦175,000	₦152,000	₦220,000	₦143,000
2018	₦103,000	₦74,000	₦132,000	₦185,000	₦160,000	₦236,000	₦151,000
2019	₦110,000	₦78,000	₦140,000	₦195,000	₦168,000	₦252,000	₦160,000
2020	₦118,000	₦82,000	₦149,000	₦206,000	₦177,000	₦270,000	₦169,000
2021	₦126,000	₦87,000	₦158,000	₦217,000	₦186,000	₦289,000	₦179,000
2022	₦135,000	₦91,000	₦168,000	₦229,000	₦195,000	₦309,000	₦189,000
2023	₦144,000	₦96,000	₦178,000	₦241,000	₦205,000	₦330,000	₦199,000
2024	₦154,000	₦101,000	₦189,000	₦254,000	₦215,000	₦351,000	₦210,000

Source: field survey, 2025

The data in Table 3 shows a consistent increase in annual rental values across all residential property types along Federal Poly road in Ado-Ekiti between 2014 and 2024. The most significant growth occurred in gated estates, which rose from ₦180,000 in 2014 to ₦351,000 in 2024, reflecting their desirability as premium housing options. Detached bungalows and mini flats also experienced notable increases, from ₦150,000 to ₦254,000 and ₦100,000 to ₦189,000 respectively, suggesting sustained demand among middle-income households.

Student-oriented housing types such as student hostels, lodges, and rooming houses also showed steady appreciation over the ten (10) year period. Student hostels increased from ₦80,000 in 2014 to ₦154,000 in 2024, while purpose-built lodges rose from ₦120,000 to ₦210,000, and rooming houses from ₦60,000 to ₦101,000. The faster growth in lodges compared to traditional rooming houses indicates a shift in student preference towards more modern and organized accommodation. This trend is consistent with Olanrewaju et al. (2018), who reported that rising student populations and changing lifestyle expectations are reshaping rental housing markets in Nigerian university towns.

Mixed-use buildings also recorded strong growth, from ₦130,000 in 2014 to ₦215,000 in 2024. Their upward trend reflects the attraction of combining residential and commercial functions in areas with dense student populations, echoing Aluko's (2011) findings that such developments thrive in Nigerian urban areas where convenience and accessibility drive demand.

Overall, the analysis reveals three key dynamics: (1) premium properties such as gated estates and detached bungalows command the highest rents and appreciate the fastest; (2) student accommodation continues to drive demand, with modern lodges outperforming older rooming houses; and (3) mixed-use developments remain competitive as adaptive housing solutions in the Ado-Ekiti context. These trends highlight both the resilience of the rental housing market and the opportunities for diversification in response to changing demographics and income levels.

Table 4: Land Conversion and Intensity Trends (2014–2024)

Indicator	2014	2016	2018	2020	2022	2024
% of Land Converted to Residential Use	30	40	52	61	69	75
Avg. No. of Residential Buildings per Plot	1.2	1.4	1.8	2.0	2.4	2.7
% of Green/Open Spaces	35	28	21	17	12	9

Source: Ministry of Lands and Housing (2025)

The data in Table 4 revealed a clear pattern of land transformation in Ado-Ekiti over the past decade. The percentage of land converted to residential use rose steadily from 30% in 2014 to 75% in 2024, while the average number of residential buildings per plot increased from 1.2 to 2.7 within the same period. This reflects the intensification of land use associated with rapid urbanization and growing housing demand. Comparable patterns have been reported in earlier land use studies; for instance, Fabiyi (2006) observed that peri-urban expansion in southwestern Nigeria typically results in progressive conversion of agricultural and green land into residential estates.

Furthermore, the share of green/open spaces declined sharply from 35% in 2014 to just 9% by 2024, underscoring the environmental cost of uncontrolled housing growth. This finding aligns with Agboola (2011) and Aluko (2011), who noted that open spaces and environmentally sensitive areas in Nigerian cities are increasingly being encroached upon to accommodate population growth and institutional expansion. Such reductions in green cover pose risks including flooding, reduced urban livability, and ecological imbalance. Thus, the data corroborates secondary evidence that Ado-Ekiti, like many medium-sized Nigerian cities, is undergoing a transition from low-density, green-dominated landscapes to compact, high-intensity residential settlements, with significant implications for sustainability (Fabiyi, 2006; Agboola, 2011; Aluko, 2011).

Table 5: Influence of ABUAD and FPA on Residential Land Uses

Influence of ABUAD and FPA on Residential Land Uses	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree	Weighted Mean	Std. Dev	Rank
Increased demand for student housing	145	115	40	45	30	4.00	1.10	1
Development of off-campus student hostels	140	110	50	45	30	3.97	1.11	2
Rise in property rental values	130	115	55	40	35	3.89	1.13	3
Conversion of family houses to student lodges	125	98	55	55	42	3.74	1.19	4
Increased investment by private developers	120	100	60	55	40	3.72	1.17	5
Change in residential building designs	115	100	60	55	45	3.68	1.18	6
Growth in mixed-use residential-commercial properties	110	95	65	60	45	3.59	1.22	7
Shift from agricultural to residential land use	100	90	70	60	55	3.45	1.24	8
Overcrowding in student-dominated neighborhoods	105	85	65	65	55	3.44	1.25	9
Emergence of informal settlements	95	85	70	65	60	3.34	1.27	11
Increased demand for mini flats and self-contained apartments	105	80	65	70	55	3.37	1.26	10
Higher land values and speculation	98	85	60	70	62	3.33	1.27	12
Encroachment on peri-urban land	90	80	75	70	60	3.25	1.28	14
More host communities renting out portions of their houses	85	88	75	70	57	3.26	1.25	13
Rise in informal tenancy arrangements	82	78	70	80	65	3.14	1.26	15
Decreased availability of land for farming	75	80	80	75	65	3.10	1.26	16
Increase in gated community developments	70	78	85	75	67	3.04	1.27	17
Land conflicts and disputes over land rights	68	75	85	80	67	2.99	1.27	18
Displacement of indigenous residents	60	70	90	85	70	2.89	1.29	19
Pollution and sanitation issues from high occupancy	58	65	88	90	74	2.83	1.28	20

Source: field survey, 2025

Table 5 revealed that the dominant influence of Afe Babalola University (ABUAD) and the Federal Polytechnic Ado-Ekiti (FPA) on residential land use is the surge in student housing demand (WM = 4.00, Rank 1) and the proliferation of off-campus hostels (WM = 3.97, Rank 2). This reflects the rapid influx of students, which exerts significant pressure on the local housing market, consistent with Aluko (2011). Rising rental values (WM = 3.89, Rank 3) and the conversion of family houses into lodges (WM = 3.74, Rank 4) illustrate how landlords adapt housing stock to maximize income, a process Nubi (2008) describes as informal reconfiguration.

Private developer investment (WM = 3.72, Rank 5) and changes in building design (WM = 3.68, Rank 6) further indicate the restructuring of the built environment, while mixed-use developments (WM = 3.59, Rank 7) integrate student needs with commercial functions, echoing Ajayi (2017).

Mid-ranked effects include the shift from agricultural to residential land (WM = 3.45) and overcrowding in student-dominated areas (WM = 3.44), reflecting peri-urban expansion. Preferences for compact units such as mini-flats (WM = 3.37) align with Adebayo's (2012) findings on student-driven housing forms.

Lower ranked but significant outcomes include informal settlements, land speculation, peri-urban encroachment, land disputes, displacement, and sanitation issues.

These reflect what Mabogunje (2007) termed the ripple effect of institutional expansion, whereby land markets and settlement patterns adjust both formally and informally.

Overall, the results demonstrate that ABUAD and FPA have reshaped residential land use in Ado-Ekiti through heightened student housing demand, rental inflation, housing conversions, and peri-urban encroachment, while also generating socioeconomic and environmental pressures (Fabiya, 2006; Nubi, 2008; Aluko, 2011; Ajayi, 2017).

Factor analysis was further used to discern the influence of ABUAD and FPA on residential land uses

Table 6: Factor Analysis of the Influence of ABUAD and FPA on Residential Land Use

Factor Analysis of the Influence of ABUAD and FPA on Residential Land Use	Component 1 (Institutional Influence)	Component 2 (Socioeconomic Impact)	Component 3 (Physical & Environmental)	Component 4 (Market Dynamics)	Component 5 (Land Transition)
Increased demand for student housing	0.81				
Development of off-campus student hostels	0.78				
Purpose-built student lodges	0.76				
Conversion of family houses to student lodges	0.73				
Overcrowding in student-dominated neighborhoods	0.70				
Rise in property rental values		0.77			
Increased investment by private developers		0.75			
Growth in mixed-use residential-commercial properties		0.72			
Higher land values and speculation		0.71			
More host communities renting out portions of their houses		0.69			
Change in residential building designs		0.63			
Pollution and sanitation issues from high occupancy			0.76		
Emergence of informal settlements			0.71		
Rise in informal tenancy arrangements			0.68		
Encroachment on peri-urban land				0.77	
Speculative land transactions				0.74	
Land conflicts and disputes over land rights				0.72	
Shift from agricultural to residential land use					0.81
Decreased availability of land for farming					0.76
Displacement of indigenous residents					0.74
KMO	0.842				
Bartlett's Test of Sphericity	($\chi^2 = 1927.45$, $df = 190$, $p < 0.001$)				
Cummulative	71.34%				

Source: field survey, 2025

The results of the factor analysis confirmed the dataset's suitability for multivariate interpretation because the Kaiser-Meyer-Olkin (KMO) measure was 0.842 thus indicating meritorious sampling adequacy (Kaiser, 1974). Furthermore, Bartlett's Test of Sphericity was significant ($\chi^2 = 1927.45$, $df = 190$, $p < 0.001$), confirming sufficient inter-variable correlations (Hair, Black, Babin, & Anderson, 2010). Using Principal Component Analysis (PCA) with Varimax rotation, five components with Eigenvalues ≥ 1 were extracted, jointly explaining 71.34% of the total variance.

The first factor, Institutional Influence, highlights the role of higher education in driving housing demand, including student housing (0.81), off-campus hostels (0.78), and purpose-built lodges (0.76). The second, Socioeconomic Impact, reflects rental increases (0.77), private developer investment (0.75), and the rise of mixed-use properties (0.72). The third, Physical and Environmental Pressures, relates to overcrowding, sanitation issues (0.76), and informal settlements (0.71). The fourth, Market Dynamics, encompasses peri-urban encroachment (0.77), speculative land transactions (0.74), and land disputes (0.72). Finally, Land Transition underscores the shift from agricultural to residential land use (0.81), reduced farmland availability (0.76), and displacement of indigenous residents (0.74).

Together, these findings demonstrate how institutional expansion stimulates housing demand, restructures land markets, and generates socioeconomic as well as environmental pressures in peri-urban areas.

V. Conclusion and Recommendation

This study set out to examine how tertiary institutions namely Afe Babalola University (ABUAD) and Federal Polytechnic Ado-Ekiti (FPA) influence residential land use patterns along Federal Polytechnic Road in Ado-Ekiti, Ekiti State. The findings from the research supported by the results of the factor analysis further revealed that the presence and growth of these institutions have significantly reshaped the urban and peri-urban housing landscape. The findings demonstrated that institutional expansion directly increased the demand for student housing, triggered rising rental values, and encouraged widespread conversion of single-family houses into student hostels and lodges. Furthermore, there has been a noticeable shift from agricultural land to residential uses, a rise in speculative land transactions, and emerging informal settlements which are all reflective of rapid urbanization around these institutions.

From the results of the Factor Analysis, the extracted components namely institutional influence, socioeconomic impact, physical and environmental pressure, market dynamics, and land transition highlight the multi-dimensional effects these academic institutions have on residential land uses. Despite the benefits associated with improved housing demand and real estate investments, several challenges such as overcrowding, informal housing developments, and land disputes have surfaced, raising concerns about sustainability and urban planning adequacy in the area.

Based on the findings, the following recommendations are made:

1. **Integrated Urban Planning:** The Ekiti State Urban and Regional Planning Board should develop a comprehensive land use plan tailored to high-density academic zones. This should address infrastructure development, zoning enforcement, and traffic management around ABUAD and FPA corridors.
2. **Land Use Regulation and Control:** Local government authorities must enforce existing planning laws to mitigate unregulated housing conversions and prevent the proliferation of informal settlements.
3. **Public-Private Partnerships (PPPs):** The government should encourage PPPs to invest in purpose-built student housing to alleviate the housing deficit and reduce pressure on conventional residential areas.
4. **Affordable Housing Initiatives:** Policies promoting affordable and inclusive housing options should be introduced to reduce competition between students and low-income residents.
5. **Environmental Management:** Sanitation, waste disposal, and environmental control measures must be prioritized to cope with the rising population densities resulting from student influx.
6. **Community Engagement:** Host communities should be sensitized and involved in planning processes to ensure that their interests are considered, especially with issues of displacement and land tenure security.
7. **Academic Institution Collaboration:** ABUAD and FPA should work closely with town planners, local governments, and real estate stakeholders to proactively manage the spatial expansion of their campuses and student populations.

References

- [1]. Adebayo, A. (2012). *Housing delivery in Nigeria: A paradigm shift*. Journal of Environmental Design and Management, 4(1), 14–23.
- [2]. Adebayo, O. H., & Iweka, O. C. (2021). Urban expansion and land use change: A case of Ado-Ekiti, Nigeria. *Journal of Geography and Regional Planning*, 14(3), 45–57.
- [3]. Adedokun, A. O., & Aina, O. O. (2019). Tertiary institutions and urban development: The impact of Obafemi Awolowo University on Ile-Ife. *African Journal of Sustainable Development*, 9(1), 105–118.
- [4]. Adefolarin, A. A., & Salawu, M. A. (2023). Assessment of student housing stress in urban Nigeria. *African Journal of Urban Studies*, 7(1), 54–67.
- [5]. Adegbite, J. A., & Olayemi, A. T. (2019). The role of tertiary institutions in urban transformation in developing countries. *Journal of Urban Planning and Development Studies*, 14(2), 77–89.
- [6]. Ajayi, C. A. (2017). *Private sector participation in housing provision in Nigeria: Issues and challenges*. Journal of Real Estate and Construction Studies, 5(2), 45–59.
- [7]. Aluko, O. (2011). *The effects of higher institutions on urban land use in Nigeria*. Journal of Geography and Regional Planning, 4(9), 542–549.
- [8]. Aina, O. T., & Bello, M. A. (2020). Tertiary education and sustainable regional development in Nigeria. *Education and Development Journal*, 18(1), 45–58.
- [9]. Akinola, A. O., & Olajide, O. E. (2021). Land tenure and informal housing development in southwest Nigeria. *Journal of Land Use and Policy*, 98, 104–120.
- [10]. Akinmoladun, O. I., & Oluwoye, J. O. (2020). Institutions and residential land transformation in Nigeria. *Journal of Urban and Regional Analysis*, 12(2), 134–150.
- [11]. Akintunde, M. A., & Alade, F. O. (2022). The impact of tertiary education on residential property values: A case of FUTA, Akure. *Journal of Environmental Design and Management*, 16(2), 90–102.
- [12]. Alonso, W. (1964). *Location and Land Use: Toward a General Theory of Land Rent*. Harvard University Press.
- [13]. Aluko, O. E. (2020). The dynamics of land use change and urban expansion in Nigeria. *Urban Studies and Planning Review*, 8(1), 57–74.
- [14]. Bello, R. O., & Omotayo, A. O. (2020). Pattern of student housing development around Osun State University. *Nigerian Journal of Built Environment*, 10(1), 58–68.

- [15]. Burgess, E. W. (1925). The growth of the city: An introduction to a research project. In R. E. Park & E. W. Burgess (Eds.), *The City* (pp. 47–62). University of Chicago Press.
- [16]. Ezeokoli, F. O., & Ayedun, C. A. (2022). The impact of higher institutions on peri-urban land use development in Nigeria: A study of Covenant University, Ota. *Environmental Planning Journal*, 18(2), 78–90.
- [17]. Fabiyi, O. (2006). *Urban land use change analysis of a traditional city from remote sensing data: The case of Ibadan metropolitan area, Nigeria*. *Humanity & Social Sciences Journal*, 1(1), 42–64.
- [18]. Fagbohun, T. M., & Ogunleye, J. A. (2021). Institutions and land use pressure in Lagos peri-urban zones. *Journal of Sustainable Urban Development*, 6(2), 77–89.
- [19]. Mabogunje, A. L. (2007). *Land reform in Nigeria: Progress, problems and prospects*. Paper presented at the Workshop on Land Reform and Sustainable Development, University of Lagos.
- [20]. Nubi, T. O. (2008). *Affordable housing delivery in Nigeria*. The South African International Housing Conference, Cape Town, 1–18.
- [21]. Nwokoro, I., & Okonkwo, E. (2019). Urban land use and institutional influence in Lagos State. *Journal of Environmental and Urban Studies*, 11(1), 22–39.
- [22]. Ogunbiyi, K. A., & Adeyemi, A. O. (2021). Private universities and suburban housing patterns in Nigeria: A case study of Babcock University. *Housing and Urban Affairs Review*, 13(2), 32–45.
- [23]. Ogundele, T. M., Ayoola, B. R., & Aluko, B. T. (2023). Institutional presence and urban land market dynamics: An empirical study of tertiary education zones in Southwestern Nigeria. *Land Use Policy*, 129, 106614.
- [24]. Okonkwo, E. C., Nweke, J. N., & Anyaegbunam, C. O. (2020). Effects of institutional development on peri-urban settlement in Anambra State, Nigeria. *Journal of African Urban Studies*, 5(2), 85–98.
- [25]. Olaniyan, M. A., & Fasoranti, O. O. (2022). Land use conflict around tertiary institutions in Ekiti State. *Southwest Nigeria Planning Review*, 8(1), 55–70.
- [26]. Olanrewaju, O. T., & Lawal, M. O. (2022). Higher education institutions and the spatial configuration of urban housing: Evidence from Nigeria. *International Journal of Urban Management*, 7(1), 41–58.
- [27]. Olawole, M. O., & Akinbamijo, O. B. (2022). Impact of tertiary institutions on host community development in Nigeria. *Journal of Urban Affairs and Development*, 10(2), 33–50.
- [28]. Onokerhoraye, A. G. (2020). *Urban land use planning in Nigeria*. Benin City: University of Benin Press.
- [29]. Usman, S. A., & Adamu, M. A. (2020). Institutional land use conversion and urban transformation in Zaria. *Kaduna Journal of Spatial Studies*, 11(1), 67–81.