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### A Correlate Analysis of Residential Property Values at Border Communities of Ogun and Lagos States, Nigeria

*Olayinka C. OLOKE, Deborah JESUSEGUN and Oluwale ALAGBE*

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#### Abstract:

This study highlights the differences in the value of properties in two adjacent communities but different geographical and administrative jurisdiction. Also brought to the fore are the factors responsible for the variations and possible impact on the emerging megacity. Primary and secondary data were made use in the study. Extant literatures on the topic were reviewed to establish divers' interests, perception and context of the current study. Data were collected basically with close-ended questionnaires administered to two categories of respondents, first, residents in the neighbourhoods and second, professional property brokers. In all, a total of 236 questionnaires were administered. Statistical tools such as tables, percentages and mean and independent sample T-test statistics was used to analyse and present data collected on rental values of residential properties while Pearson coefficient of correlation was used to establish the degree of relationship. Results of data analysis showed that there exist significant differences in property rental values in the two border communities while the Pearson correlation coefficient revealed a strong positive correlation between rental values of the neighbourhoods. Significant amongst the factors affecting property values in the communities are the level of infrastructure development, adherence/enforcement of physical planning regulations, administrative jurisdiction, population density, proximity to CBD and level of commercial activities. The study concluded by recommending major investment in physical and socio-

Olayinka OLOKE  
Department of Estate Management, College of Science and Technology, Covenant University, Canaanland,  
Ota, Ogun State, Nigeria

[Yinka.oloke@covenantuniversity.edu.ng](mailto:Yinka.oloke@covenantuniversity.edu.ng)

Deborah JESUSEGUN  
Department of Estate Management, College of Science and Technology, Covenant University, Canaanland,  
Ota, Ogun State, Nigeria

[Deborah.jesusegun@stu.cu.edu.ng](mailto:Deborah.jesusegun@stu.cu.edu.ng)

Oluwole ALAGBE  
Department of Architecture, College of Science and Technology, Covenant University, Canaanland, Ota,  
Ogun State Nigeria

[oluwole.alagbe@covenantuniversity.edu.ng](mailto:oluwole.alagbe@covenantuniversity.edu.ng)

## Abstract

This study highlights the disparity in the property values of adjacent communities under different geographical and administrative jurisdiction. Also identified are the factors responsible for the variations and implications for the emerging megacity. Extant literatures were reviewed to establish divers' interests, perception and context of the study. Data were collected with structured questionnaires administered to two categories of respondents; residents in the neighbourhoods and professional property managers. A total of 236 questionnaires were administered. Statistical tools such as percentages mean and independent sample T-test statistics were used to analyse the data collected on rental values of residential properties and results presented in tables. Pearson coefficient of correlation was used to establish the degree of relationship. Results of data analysis showed that significant differences exist between rental values of residential properties in the two border communities while the Pearson correlation coefficient revealed a strong positive correlation between rental values of properties in the neighbourhoods. Significant amongst the factors affecting property values in the communities are the level of infrastructure development, adherence/enforcement of physical planning regulations, administrative jurisdiction, population density, proximity to CBD and level of commercial activities. The study concluded by recommending major investment in physical and socio-economic infrastructure in both communities and creation of joint development policy and programme by governments of Lagos and Ogun states so as to overcome administrative jurisdiction barrier militating against the actualization of the megacity project.

**Keywords:** border, infrastructure, megacity, residential, value

## Introduction

Growth and physical expansion of urban settlements is a global phenomenon which in recent times has gained momentum in regions regarded as less developed (Abiodun, Olaleye, Dokia and Odunaiya, 2011). The pattern of growth and development of urban areas is defined by several factors. While factors like presence of modern infrastructure such as pipe borne water, electricity good road network, access to social services and sporting facilities, employment opportunities, concentration of industrial and commercial activities, location of administrative and other government establishments etc. continues to attract population into urban areas, increase in crime rate, all forms of environmental pollution, rising cost of living, rising cost of housing and land procurement, traffic challenge, breakdown of existing infrastructure, retirement and old age related reasons and several other factors over the years have pushed human population out of urban

areas to peri-urban and rural fringes in droves. Of recent, many peri-urban areas are witnessing population growth on a scale that is unprecedented. For instance, Adelekan, Olajide-Taiwo, Ayorinde, Ajayi, and Babajide (2014) stated that while the average population growth rate per year in Ibadan metropolis was 0.5 percent between 1991 and 2006, average growth rate for the peri-urban areas was 4.8 percent over the same period. Urbanization is the lead cause of peri-urbanization and this according to Adelekan (2016) is a process whereby extensive areas earlier characterized by rural features get absorbed into the city or transformed into peri-urban areas. Peri-urbanization gradually absorbs existing physical developments and paves way for modern structures, social as well as economic infrastructure developments. People move from overcrowded city centers to the less populated sub-urban areas. As population of these areas increase, demands for land for different uses such as housing, commercial, education, administration, financial services and other economic purposes also increase. In most developing nations where physical planning regulations are weak and suffer poor implementation, sub-urban growth and developments are often unplanned, uncontrolled and disorganized, exposing the residents to diverse environmental risks and hazards.

Bloch, Fox, Monroy and Ojo, (2015) observed that the growth of Nigeria's urban population has been accompanied by the expansion of existing built-up areas and the emergence of new and identifiably urban settlements. For instance, Lagos megacity according to Mehrotra et. al, (2009), is one of the fastest growing urban centres. Aside the official estimate of about 9 million according to NPC (2006), the UN-Habitat estimated the city's population to be about 15 million in 2006 with 600,000 additional migrants added each year. This has been projected to about 20 million in 2015. Lagos state according to Salau, Lawanson and Odumbaku (2013) has continued to grow in terms of population and space, spilling excess population into the neighbouring Ogun state. The Lagos megacity project covers the whole of Lagos state and four local governments in Ogun State which are at the border of Lagos State. These include: Ado-Odo/Ota, Ifo, Obafemi-Owode and Sagamu (Bello and Olatubara, 2014). The Ogun State Government report (2015) revealed that Lagos side of the megacity is made up of 74% of the built-up area and has 85% of the megacity population. Ogun state side on the other hand has 26% of the built up area and accounts for about 15% of the megacity population. The communities in adjoining local government to Lagos State that forms part of Lagos State continues to experience influx of population from the over-populated Lagos metropolis. Thus the dual character of the Lagos megacity which comprises communities from two different geographical and administrative jurisdictions prompted the study. The study analysed and compared residential property values of border communities under the umbrella of Lagos megacity project.

## Literature Review

### *Urban growth and development pattern*

Ogu (2005) described the post-independence urban development process in Nigeria in the form of growth by densification and growth by expansion. This as explained exists at the edges of existing urban areas and refers to the appearance of new parts of a city. Atu et. al, (2012) opined that this occurs when detached improvements and settlements that were not part of urban areas are absorbed at the city borders as a result of physical expansion. This aptly describes urban development process that saw the fusion of scattered neighbourhoods that were hitherto located within the fringes of Lagos metropolis. Growth by densification on the other hand describes the emergence of independent houses in areas previously occupied by single large housing structures (Bloch, Monroy, Fox and Ojo, 2015). This pattern of growth as explained in the study is common with urban cores or existing urban areas and has led to the appearance of various forms of development within the traditional core of Nigerian cities, notably the emergence of informal settlements. This not only explained the process of urban transformation witnessed in major city centers such as Ibadan, Abeokuta and Lagos, but also that of Ota town in Ado-Odo/Ota Local government area of the Lagos

megacity. Ota was a core ancient town with distinct cultural and morphological characteristics and a largely homogenous population. The expansion cum explosion of Lagos population resulted have over the past decades diluted the homogenous population of the ancient Ado-Odo/Ota towns and triggered the appearance of various socio-economic, administrative structures and infrastructures typical of urban transformation process. Thus urban expansion connotes the improvement and expansion of urban areas in terms of size in order to create space for urban growth. Notwithstanding, Adewale, Ibem, Amole and Adeboye (2020) observed that the plight of residents of inner-city slum has attracted attention because of the degenerated state of infrastructure. Urban growth results from three processes namely; natural population growth, rural-urban migration and reclassification of rural into urban areas. The emergence of Lagos megacity and the physical and geographical coverage therefore reflects the underlying process of these three forces at work. However, Bloch et al., (2015) found out that urban growth and development further depends on the prevailing political and economic situation as well as government control mechanism. Lack of good government control results in spontaneous patterns of growth around urban fringes while proper control sets unnecessary expansion within limits. Urban growth and development increases competition among land use and resources, urban land cost and ultimately, renters and owner's housing procurement costs.

#### *Urban infrastructure development*

Infrastructure development is one vital socio-economic factor that makes a human settlement urban and livable. Basic infrastructure that facilitate development in any neighbourhood include housing, good road network, drainage, electricity, decent water supply system, waste management system, primary healthcare facilities, educational facilities, effective security architecture combined with well-planned and coordinated developments. Urban infrastructure provision is not only the responsibility of the government alone. The influx of people into the sub-urban areas of a city only culminates in demand for more housing and other socio-economic infrastructures. These demands not only reveal urgent government intervention in many areas but also create viable opportunities for private sector participation. Infrastructure development is found to be a vital factor that determines the value of a neighbourhood and is reflected in land and property values in the area. According to Oloke, Simon and Adesulu (2013), the level of infrastructure development in a neighbourhood is very critical to determining housing prices and as well attracts huge investment in broad range of real estate products. Providing infrastructure throughout the country has almost become impossible for the government and as such, it has become important for private sector and other stakeholders to contribute to infrastructure provision. Bello, Adeniji and Arowosegbe (2015) identified four participants in the provision of urban infrastructures namely: the government, formal private sector, informal private sector, and residents of the affected community. Alyafei, (2017) revealed that the government of Qatar considers the involvement of residents as key to the country's progressive development. Ahuja and Priyadarshini (2017) also emphasized that the people affected by a development need to be duly informed in order for them to be involved in the development. It was also noted by Ahuja and Priyadarshini, (2017) that the goal of sustainable development is likely to be achieved when the affected communities are actively involved in the process so that they do not indirectly impede on the benefits of the infrastructures provided.

#### *Urban infrastructure and property value*

Urban infrastructure and property value are closely connected as the level of development or the state of infrastructure determines the value of property in the vicinity. Real estate products include vacant/virgin land, and developed land ranging from housing to industrial, commercial, administrative, health and educational facilities, recreational, entertainment and hospitality developments as well as market structures located in an area. Land and landed properties are either rented or purchased to meet these different purposes and coupled with the portion of land laid out for infrastructure provision, the competing uses for land resources most times results in enhanced value of land and landed properties in an urbanizing neighbourhood. Other dimensions of value largely grouped as statutory or non-statutory values though exist for properties, these values generally are affected by the level or state of infrastructure. Property value worldwide is a metric for assessing the level of development in any given area. Babalola et. al. (2020)

submitted that quality and sustainable housing environment is germane to quality living in public housing estates. The higher the value of properties, the higher the level of development in that location and vice-versa. This explains why different places have unique property market as location to a large extent determines value. Different studies have investigated the impact of different infrastructure on residential property value. For instance, Qin, Yu, and Liu (2019) examined the impacts of the HOPSCA (Hotels, Offices, Parks, Shopping malls, Convention centers, and Apartments) facilities on housing prices and found that HOPSCA had both positive and negative impacts on accommodation values. It was observed that different cases of HOPSCA had different impacts on accommodation values according to the situation and mode of arrangement. Also, Gargiulo (2010) assessed the impact of city renewals, focusing on the construction of an extravagantly fast rail route and its effect on property prices. The study also concluded that the development of fast rail system drastically increased property values in the area. In addition, the larger developed city centres were very much affected as the transport infrastructure helped revived the blighted areas. Bello, Adeniji, and Arowosegbe (2015) examined the important of urban facilities to property values in Abeokuta’s city center, Ogun state, Nigeria. It was concluded that the provision and condition of infrastructural services led to an enormous rise in price. In order to place the pace of development of communities under the Lagos megacity project on the same page with the agenda of the vision, this study was conducted to serve as development metric particularly for the border communities.

## Research Methods

The study population comprises residential properties owners in Alimosho and Ado-Odo/Ota local government areas of Lagos and Ogun States, as well as estate surveyors and valuers in Ikeja, Lagos. Two border communities were purposely selected from each local government area. The communities were Joke Ayo community in Alimosho and Akeja community in Ado-Odo/Ota. The sample size was determined by measuring a radius of 1km on either side of the bridge that demarcates the boundary between the two communities. A total of 63 houses were counted within the 1km radius in Akeju community and 89 houses within the 1km radius of Joke-Ayo community making 152 houses. Thus the first category of respondents is the 152 adult residents or household heads from each of the 152 houses surveyed. The second category of respondents are the estate surveyors and valuers in the 84 estate firms in Ikeja, Lagos as obtained in the 2016 directory of the Nigerian Institution of Estate Surveyors and Valuers. Estate surveyors and valuers according to Oloke, Ijase and Oyedele (2013) are those trained and authorized to carryout valuation and other related services such as property management, sales, letting, feasibility and viability study etc. Sample sizes for the target population are the owners/adult residents of the identified houses and estate valuers in the capacity of manager or partner in the firm. Structured questionnaire was administered to the two set of respondents. Rent per annum of the various types of residential property in the study areas was obtained over a six year period (2014-2020). The impact of the factors influencing residential property values in the neighbourhoods was assessed on a five point likert scale namely: nil, low, moderate, high and very high with weight ranging from 5 (very high) to 1 (nil). Statistical tools of mean and range were used to determine point estimates of rents of different accommodation types as well as the change in rental values. Karl Pearson product moment coefficient of correlation was used to establish the relationship between rental values in the two localities. Findings were presented in tables, charts and then discussed.

## Result Analysis

### *Response analysis*

Table 1: Analysis of response

Questionnaires	Joke-Ayo (Lagos)	Akeja (Ogun)	Estate Firms	Total
No. Administered	89	63	84	236

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No. Retrieved	73	54	65	187
Response rate (%)	82.0	85.7	77.4	79.2%

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One hundred and fifty-two (152) questionnaires were administered to household heads within the selected border communities. A total of 122 were retrieved constituting 83.6 percent response level. This was sufficient for subsequent analysis. The pattern of questionnaire administration and retrieval rate is as shown in Table 1.

*Types of residential property in selected neighbourhoods*

Table 2: Types of residential property in the communities

Property Type	Property Description	Joke-Ayo (Lagos)		Akeja (Ogun)	
		No.	Percentage	No.	Percentage
Type 1	Tenement building	3	4.1%	12	22.2%
Type 2	Self-contained	5	6.8%	3	5.6%
Type 3*	Blk of 2 bdrm flats	11	15.1%	9	16.7%
Type 4**	Blk of 3 bdrm flat	17	23.3%	11	20.4%
Type 5	2 bedroom bungalow	3	4.1%	5	9.3%
Type 6	3 bedroom bungalow	17	23.3%	8	14.8%
Type 7	Semi-detached	7	9.5%	4	7.4%
Type 8	Fully-detached	10	13.7%	2	3.7%
Total		73	100	54	100

Key:

\*Block of 2 Bedroom Flats

\*\*Block of 3 Bedroom Flats

Table 2 contains the different types of accommodation of respondents in study area. The Table revealed that tenement accommodation are common in Akeju community having 22.2% of the number of houses captured compared to blocks of 3 bedroom flat and 3 bedroom bungalow that have 16.7% and 20.4% respectively within the same community. However, blocks of 3 bedroom flats and 2 bedroom bungalow have the highest occurrence with 23.3% each in the Joke-Ayo community of Lagos State. The survey further revealed fewer types of modern design accommodation in Akeju compared to Joke-Ayo neighbourhood.

Table 3 presents the average rental value of accommodation types in the two neighbourhoods over a period of 6 years. This was obtained from the responses of professional property managers surveyed. The figures were estimates of range of values supplied by the valuers for each property type between 2014 and 2020. It was observed that average rental values increase in both communities during some periods but remain constant at some other periods. For instance, similar average rent was observed in 2019 and 2020. However, neither the rate of growth nor the relationship between the values was immediately clear from the Table.

Table 3: Average rental value of residential properties in Joke-Ayo and Akeja communities

Types	2014		2015		2016		2017	
	Joke-Ayo	Akeja	Joke-Ayo	Akeja	Joke-Ayo	Akeja	Joke-Ayo	Akeja
Type 1	30,000	12,000	45,000	15,000	50,000	18,000	60,000	24,000
Type 2	90,000	22,500	120,000	25,000	120,000	35,000	150,000	50,000
Type 3	150,000	60,000	160,000	90,000	180,000	120,000	200,000	130,000
Type 4	180,000	90,000	200,000	100,000	240,000	120,000	250,000	150,000
Type 5	220,000	100,000	250,000	120,000	280,000	130,000	280,000	150,000
Type 6	250,000	110,000	280,000	140,000	320,000	170,000	350,000	200,000
Type 7	260,000	120,000	280,000	150,000	350,000	180,000	360,000	240,000
Type 8	280,000	150,000	300,000	180,000	360,000	240,000	400,000	280,000

Types	2018		2019		2020	
	Joke-Ayo	Akeja	Joke-Ayo	Akeja	Joke-Ayo	Akeja
Type 1	75,000	30,000	90,000	50,000	90,000	50,000
Type 2	150,000	75,000	180,000	90,000	180,000	90,000
Type 3	240,000	150,000	280,000	180,000	280,000	180,000
Type 4	280,000	160,000	300,000	200,000	300,000	200,000
Type 5	320,000	180,000	350,000	220,000	350,000	220,000
Type 6	350,000	220,000	380,000	240,000	380,000	240,000
Type 7	400,000	250,000	420,000	260,000	420,000	260,000
Type 8	450,000	320,000	460,000	340,000	460,000	340,000



Arising from Table 3, the mean rental value of all types of residential properties in the two communities were determined for each year. The result was plotted on a line graph to reveal the trend of rental values between the two communities. This is shown in Figure 1.

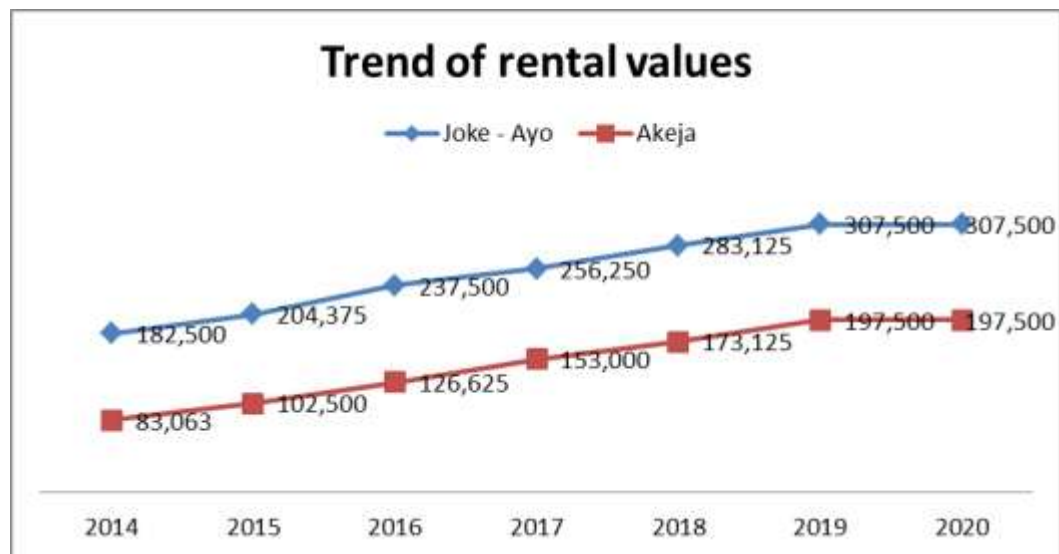


Figure 1: Trend of rental values at the selected border communities

#### Test of hypothesis

In order to ascertain the difference between the rental values of residential properties in the two communities, a null hypothesis was set and independent sample test was carried out to determine the veracity or otherwise of statement of the hypothesis. The hypothesis is as stated;

Null Hypothesis  $H_0$ : There is no significant difference between statistical mean of rental values of residential properties of selected border communities of Lagos and Ogun States.

Alternative Hypothesis  $H_1$ : There is significant difference between the statistical means of rental values of residential properties of selected border communities of Lagos and Ogun States. The result of the hypothesis is as presented in Table 4.

Table 4: Independent sample T-Test on rental values

Dependent (Test) Variable	Independent (Grouping) Variables	N	Sig.	T	Df	Sig. 2-tailed	Mean Diff.	Std Error Diff.
Rental values	Residents	122	.043	.102	185	.032	.1017	.1964
	Estate valers	65						

\*Equal variances assumed \*\*95% confidence interval of the difference

Arising from the Table, given the Sig. value of .043, equality of variance is assumed. The t statistic under the assumption of equal variances has a value of .102 and degree of freedom (df) value of 185 with an associated Sig. (2-tailed) value of .032. Since the sig. value of .032 is less than .05, the null hypothesis which states that there is no significant statistical difference between the mean rental values of residential properties in the selected border communities is rejected. By implication, the alternative hypothesis which states that there is significance difference between rental values of residential property values at border communities of Lagos and Ogun States is accepted. Furthermore, in testing the relationship between the two values of average rent per annum of residential properties in the two neighbourhood, Karl Pearson moment correlation coefficient was engaged to examine the direction and strength of the relationship. Data obtained from the professional firms were used for the analysis. A null and alternative hypothesis was set as follows;

Null Hypothesis  $H_0$ : there is no relationship between the average rental values of residential properties in the two border communities

Alternative Hypothesis  $H_1$ : There exists a relationship between the average rental values of residential properties in the two border communities

Table 5: Test of relationship of rental values between the two communities

Correlations		Rental value in Joke-Ayo Community	Rental value in Akeja Community
Rental value in Joke-Ayo Community	Pearson correlation	1	.672
	Sig. (1-tailed)		.209
	N	65	65
Rental value in Akeja Community	Pearson correlation	.672	1
	Sig. (1-tailed)	.209	
	N	65	65

As obtained in the Table 5, the Karl Pearson correlation coefficient is +0.672 and this showed that there is relatively strong positive correlation between rental values of residential properties in the two border communities. The coefficient of correlation shows that the rental values move in the same direction albeit at a significantly different magnitudes.

#### *Factors affecting rental values in the study area*

Respondents from the estate surveying and valuation firms were asked to identify the factors affecting property values in the neighbourhoods. The responses were measured against a 5-point Likert Scale ranging from very high impact (5), high impact (4), moderate impact (3), low impact (2) to no impact (1). Results of analysis were extracted and presented.

Table 6: Factors influencing property value

Factor	Joke-Ayo		Akeja	
	Mean	Rank	Mean	Rank
Population	3.891	4	4.312	1
Infrastructure development	4.512	2	2.918	5
Housing quality	4.512	2	3.212	4
Geopolitical Jurisdiction	3.891	6	2.183	8
Structural factors	4.733	1	2.702	6
Locational factors	4.132	5	3.691	2
Neighbourhood factors	4.306	3	2.433	7
Economic factors	4.141	4	2.918	5
Environmental factors	3.633	7	3.328	3

Presented in Table 6 are that factors affecting property values as obtained from the responses of the estate valuers. Also ranked is the significance of the each factor as perceived for each community. As shown, structural factors, level of infrastructure development, housing quality as well as locational and neighbourhood factors have high impact on residential property values in the neighbourhood in Joke-Ayo communities. On the other hand, population density, locational factor, housing quality are factors that have moderate impact on rental value of residential properties in Akeja communities.

## Summary of findings and discussion

Arising from the various analysis, it was observed that Joke-Ayo communities has more development density compared to Akeja community. This was attributed to the significant difference in the number of houses counted within the 1km radius of each community whereby, there are 63 houses as against the 89 within the 1km radius of each of the two communities. This reveals that Joke-Ayo is a sub-urban precinct experiencing urban fringe transformation. Figure 1 showed that the mean rental value of residential properties in the two communities increased between 2014 and 2019. This implies that the border communities witnessed similar growth pattern in the value of rental properties over the six year period. While the figure showed the pattern, Karl Pearson coefficient of correlation shows the direction and strength of relationship between the changes in the value of rents between the two communities. The coefficient of correlation clearly showed that there is strong positive correlation between rental values of residential properties in the two border communities although at different magnitudes. Finally, despite the closeness of the two border communities, the significant differences in rental value across the types of residential properties in the two communities corroborate the results in Table 5 where the study observed that different set of factors have very high influence on rental values in Joke-Ayo community compared to the factors that affect similar properties in Akeja community. The finding inherently indicates that population spill from Lagos into the border communities is an important factor contributing to the trend of rental value of residential properties in Akeja community of Ado-Odo/Ota local government of Ogun State.

## Conclusion

The study investigated the correlation between residential property rental values of selected border communities of Lagos and Ogun states. The significant disparity observed in rental values as well as the pattern of rental growth revealed the blunt gap in the level of infrastructure development, neighbourhood density, housing quality, administrative jurisdiction and level of economic development in the two communities. This notwithstanding, the relatively strong positive correlation of rental values between the border communities is an indication of the enormous potentials of property market of the Ogun communities that border Lagos State. It is therefore recommended that Ogun state government invest in the development of socio-economic infrastructure, renewal programmes of Ota border communities. Recommendations from this study would facilitate the achievement of targets 9 and 10 of the United Nations sustainable development goals. The goals aimed at building resilient infrastructure, promote inclusive and sustainable industrialization, foster innovation and reduce inequalities among urban dwellers.

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