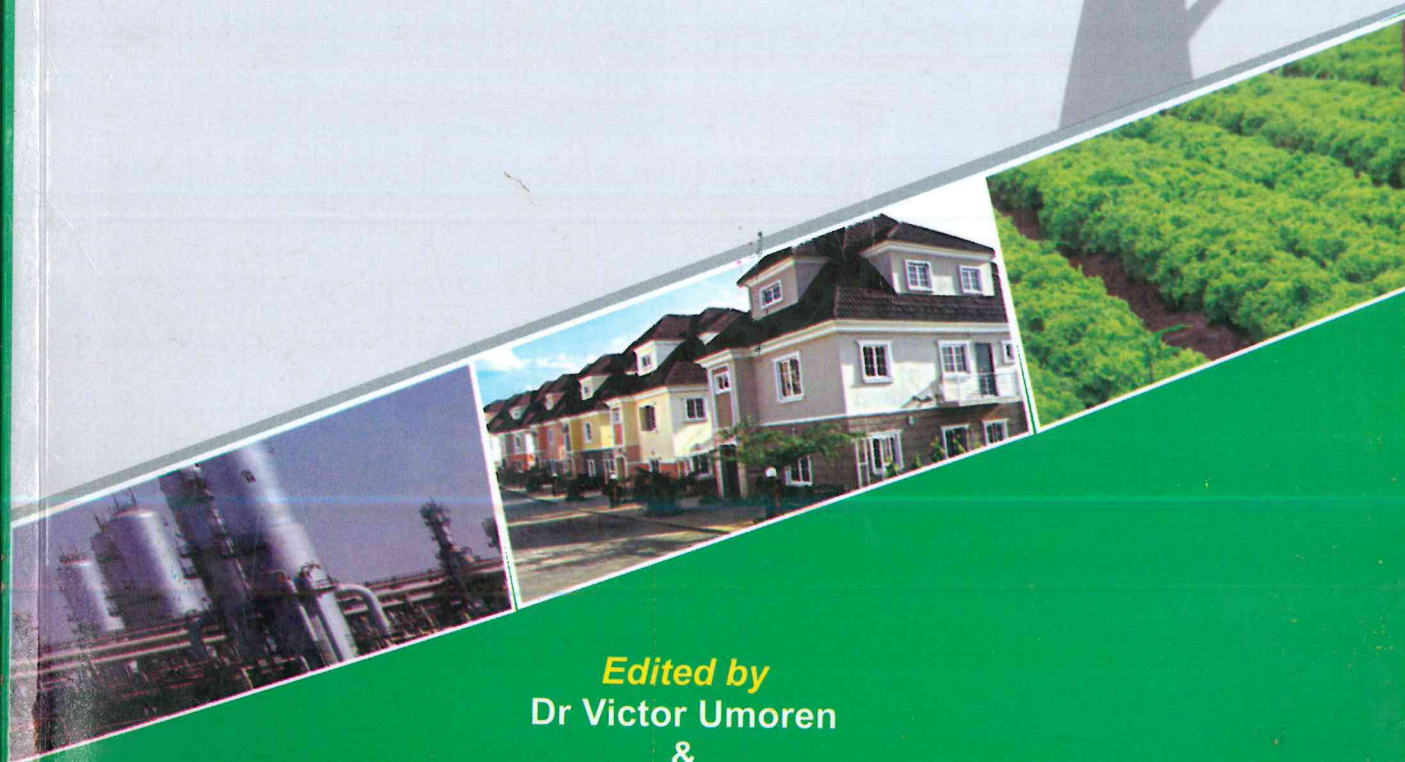


LAND USE MANAGEMENT & ENVIRONMENTAL SUSTAINABILITY IN NIGERIA



Edited by
**Dr Victor Umoren
&
Dr Jacob Atser**

Preface by
Professor Best Ochigbo

A BOOK OF READINGS

*In Memory of Late Professor Joseph Uyanga
Professor of Environmental Planning, University of Uyo, Nigeria*

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A Publication of the Department of Urban and Regional Planning,
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Gratitude also goes to Professor Godfrey Udo, the immediate past Deputy Vice Chancellor (Administration) for his encouragement and support in the course of carrying out this assignment. We are grateful to him for writing the forward. I wish to specially thank all the authors that have contributed chapters to this Book of Readings. We are also indeed grateful to Professor Authur Essaghah of Enugu State University of Science and Technology (ESUT) who was present at the presentation of "A Book of Readings" in honour of Professors Akaninyene Mendie and Offiong Bassey Ekop by the Department on 2nd October 2019, who suggested that a similar thing be done to his benefactor. We appreciate the reviewers for their insightful editorial comments, thus raising diverse issues which authors graciously corrected and streamlined to the required standards.

The editorial team did a good job, showcasing academic competence in the rigour of fine-tuning the submissions that made up this book.
Special thanks are due to the printers for their promptness in getting the work done.

Dr. Victor E. Umoren MNITP, RTP, CMILT (LOND)

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PREFACE

A catalogue of land use and environmental management crises in Nigeria is quite fascinating as each passing day, public outcry and research reports, remind us of flood that destroys lives and properties; Thousands rendered homeless, threats on agricultural lands, insecurity forcing thousands to flee their home land, and a lot more. Current development efforts in Nigeria have helped to amplify in magnitude and range, the environmental problems, thereby crippling all efforts towards sustainability. Although Nigeria has made determined efforts in the most aggressive manner than ever before to speed up development, such efforts seem to be yielding little or no positive results due to weak economic infrastructure base. The chain reactions of these problems are enormous and thus require research intervention for solution. Therefore, land use management and environmental sustainability in Nigeria is intended for a wider reading audience in order to make them better informed of the consequences of unsustainable actions.

In this laudable project, the topics were carefully selected to cover a wide variety of areas. This is not intended to cover the entire realm of Urban and Regional Planning, but to reflect contemporary land use management and environmental problems in the Nigerian scene. The articles are of high quality and issues raised serve to provide policy guide for intervention towards attaining the goals of sustainable development. The book is broad and diverse in scope covering issues of significance in dynamics of land use, infrastructure, sustainable design and construction, housing, urban development, corporate social responsibility and environmental sustainability, spatial planning and food security, population growth/quality of life and environmental quality; as well as real estate and investments; and environmental ethics. Authors' narratives reflect conceptual and methodological diagnoses and in some cases detailed empirical exposition of the problems in local studies.

As you read this resourceful and exciting compendium, it is hoped that you will not only find time to interact and engage in open discussion of issues with the authors, but will increase in awareness and greater concern about planning sustainable and liveable environment. I therefore commend the staff of the Department of Urban and Regional Planning for this noble idea and its fruitful accomplishment.

Professor Best Ochigbo
Dean, Faculty of Environmental Studies
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FOREWORD

The past few decades have witnessed unprecedented interest in the physical environment. The physical environment is an embodiment of multi-faceted phenomena, and it is open to academic and scientific analysis by professionals from various ideological and academic standpoints to make contributions to knowledge and understanding of the total environment. The need for a conscious and prudent management of the physical environment in Nigeria to address the numerous environmental challenges is apt; however, the level of success attainable is tied to the extent to which land use management practices are efficient. Inefficient land use management practices in the face of growing population will impact adversely on the built environment, thereby making it not to be able to sustain itself, undermining its capacity to positively impact on the citizenry. Governments at various levels have been working assiduously towards the realization of sustainable development goals, however, scientific research is required in order to measure the levels of progress made. It is against this background that the special value of this book is placed. I therefore recommend this book to all the stakeholders in the built-environment as well as those in academia with proven interest in environmental research.

Professor Godfrey Udo

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CHAPTER FORTY FIVE

DISPROPORTIONATE RETURNS ON RESIDENTIAL PROPERTY INVESTMENT IN ILORIN

Adeogun, Adekunle Sunday

Introduction

Urban infrastructure stands as one of the indicators of an ideal urban economic development; plays a great role in the growth and development of the urban setting and also creates attraction for all forms of investments including real estate investment (Tomlinson, 2001). Urban infrastructure is referred to as the fundamental facilities serving neighbourhood or city for effective and positive running and functioning of the economy and it is characterised by technical structures such as roads, bridges, tunnels, water supply, sewers, electrical grids, systemic communications, that enable sustained, and enhanced societal living conditions (Mendez, 2007). According to Tomlinson, (2001) more than 75.5% of the countries in the world that have moved away from poverty and subsistence economy have enabling environment and access to adequate infrastructure services.

Hoesli and McGregor(2002) opined that, availability of functional infrastructure creates affinity for other forms of investments including real estate investment and development of property investments performance indicators such as value indices, yields and total returns promote improvement in the analysis of the residential property investment returns to a large extent and the effects that infrastructure creates is one of the pillars upon which the profit on real estate investment hinges (Oduwaye (2007). Around the globe, insufficiency of infrastructure is among nightmares bedeviling real estate investment because it is capable of eroding the substantial value of corporate earnings in form of returns on investment and decrease the purchasing power of the real estate investors (Anushree 2013).

The importance of quality neighbourhood and functional infrastructure in an investment property as well as owner occupied and indeed in human life cannot be downplayed because the effectiveness of human activity is principally depends on the availability of adequate and functional infrastructure (Babarinde, 1998). Functional infrastructure contributes to the attainment of physical and moral health; encourage social steadiness, work proficiency and the personal improvement of individuals. Several studies revealed that the provision of infrastructure in Nigeria as a nation is drastically low and this statement has been affirmed by Iremiren (2001) who discovered in a study that, a substantial percentage of up to 34% (in some Nigerian cities) of houses had no access to infrastructure facilities such as electricity, water, decent and safe waste disposal systems, good neighbourhood or community health facilities, recreation facilities and good motor-

able routes. These exceptionally have imprint on the return capacity of such properties. The returns on residential property investments cannot be viewed as being sustainable due to inherent problems of inadequate and deficiency in functionality of urban infrastructure. Taking for illustration, as observed by the author, high property investment returns especially, on residential property investment, (rental/capital) which is obtainable in some areas of renowned cities in Nigeria is prospectively connected with good and modern infrastructure provided in those neighbourhoods. This hypothesis needs to be empirically confirmed because there are high rental and sales values in some areas that lack basic urban infrastructure in Nigeria. It is on this basis that, this study sets to evaluate the levels of residential property investment returns from 2010 to 2019 in Ilorin adopting total, income and capital returns (TIC) approach.

Infrastructure and Property Investment: General Review

In Keynesian economics, infrastructure was exclusively used to describe public assets that facilitate the production of goods and services including real estate. According to Shah (2002) infrastructure is the essential services needed for thriving of the real estate investment, it also drives economic growth, employment and productivity. It can be classified into three main categories namely Utility (electricity, gas, communication and water), Transport (airport, road and rail), and Social (school, hospital and community facilities). Even a broadband connection adds values to property investment both in advanced and developing countries. There is historical evidence to confirm that infrastructure boosts economy by attracting more people to a precinct (Donald 2007). Also infrastructure increases property values and provides indirect benefits to the neighbourhood and community where property situates. This is why real property investor should take an active interest in reviewing both current and planned infrastructure project within different property markets. In particular, road upgrades and development play critical role in driving up property values, as these projects make areas more accessible. Floyd (2007) clearly stated that, anything that makes a location more appealing will increase the property value in that area. However, it is as simple as saying that new or improved infrastructure will automatically increase property value and return because major infrastructure upgrades are frequently associated with strong demand in local property markets, as property investors often seek locations with infrastructure development unlock future capital growth. This in a nut shell, indicates that, infrastructure play a vital role in the potential of a property investment.

Empirical Review

Urban infrastructure is designated as social "overhead capital", which include public utilities such as electric power, telecommunication, potable water supply, sanitation and sewerage; and public works such as roads, dams, and drainage (World Bank Group, 2004). Several past studies had revealed that, infrastructure is an engine room for real property investment to flourish and is fundamental to property investment returns. Findings from previous empirical studies on infrastructure and property investment proven to this because property investment have connection with infrastructure and many of these studies have hypothesised that infrastructure is fundamental to property investment and have therefore succeeded in evaluating the effect of infrastructure on property returns (Hammer *et*

al., 2000; Mendez, 2007; Alausa 2007; Ajibola *et al.*, 2013). Gatauwa and Murungi (2015) confirmed a profound relationship between property values and public physical infrastructure development such that the prevailing level of collective property values in an urban neighbourhood is a function of public urban infrastructure (Ajayi *et al.*, 2014). In most studies, the values of residential properties found to be declined into individual prices of infrastructure for the purpose of valuation and market performance (Famuyiwa and Otegbulu, 2012). The study only equated value to return but the current study is specific on total, income and capital returns.

Hammer *et al* (2000) stated that the provision of adequate infrastructure is central to property investment returns. This is based on the study conducted in Britain where data collected on rental and property prices in twelve (12) Local Area Councils (LAC), were correlated with available infrastructure in each of the local area councils and many of the councils with high quality facilities had higher returns on property class. Johnson *et al* (2005) by adopting inferential method of data analysis and analytical tool of correlation model postulated that one of the determined elements of property investment returns is functional infrastructure. In the study, the contribution of infrastructure resulted to high capital value appreciation in property investment and was concluded that, the annual returns of property is influenced by infrastructure. This study did not consider the forces of demand and supply under the free-market system, and inference cannot be empirically made. Thus, this is the research gap this study intends to fill as it is based on a free-market analysis of demand and supply in the residential property market because the study accounted for the categories of infrastructure. Also, in the study of Ajibola *et al* (2013), the foundation of getting answer to the acknowledged problem informed the need for this study. Walter (2009) studied the analysis of the relationship between infrastructure and residential property investment value. The study was done in Kumash, between 2001 and 2008 but could not account for the categories of infrastructure measured, hence, justification for the current study. Ajakaiye (2008) revealed that the presence of housing infrastructure in a building could cause high preference, keen competition for properties and thus, high rental values while the absence of facilities results in low patronage, disincentive to people, attraction of poor tenants and consequently, low rental values. Donald (2007) was of the view that when infrastructure works, productivity and labour increase; when it does not work, economic renewal can be postponed or even halted. Ge and Du (2007) opined that property returns is an essential aspect of property markets worldwide and determined by a variety of infrastructural factors and the determination of those factors is a significant part of property valuation. The findings from previous studies have given credence to infrastructure as a life engine to real property investment and it is central to property investment value. The several findings and submissions from empirical studies on infrastructure and property investment gave clear cut evidence that, there is strong significant relationship between the infrastructure and rent on property investment (Ajibola *et al.* 2013, Olujim and Bello, 2009; Olujimi, 2010, Udoka, 2014; Walter, 2009; Samjay, 2013; Ian, 2012; Ajayi *et al.*, 2014) but this study analysed the specific effects of urban infrastructure on residential properties investment returns; not values, across the selected neighbourhoods of the study area.

The Market Approach to Property Investment Returns

According to Leonard (2011), a return is the gain or loss of a security in a particular period. The return consists of the income and the capital gains relative on an investment and it is usually quoted as a percentage. The general rule is that the more risk one takes in an investment, the greater the potential for higher returns and losses as the case may be. Some investors settle for principal protection, while most investors are in search of return, specifically alpha returns (chief or dominant). Alpha returns are generated when an investment generates more money than its costs. In general, there are two different types of return on investment and these are returns on equity and returns on assets. Each one is essentially calculated in the same way, but the inputs have different labels. Time-weighted rate of returns (TWRRs) for the sub-periods are chain-linked or compounded together to get the time weighted rate of return (TWRR) for the whole measurement period of investment. The approaches to property investment returns have been used in several studies (Daniel et al, 2014; Umeh and Oluwasore, 2015), developed empirical analysis of total, capital and income returns in Akure. The analysis of trend revealed that, total returns overlapped both capital and income returns. Therefore total return is the sum of both capital and total returns. Umeh and Oluwasore (2015) adopted the use of total return indices as a basis for modeling the influence of inflation. The various approaches to property return adapted in this study are as follows:

Total Return: Total return is the actual rate of return on investment for a given estimated period of time which includes interest, capital gains, dividends and distributions realisable over a given period of time. Total return accounts for two major categories of income including interest paid by fixed-income investments, distributions or dividends and capital appreciation, representing the change in the market price of an asset. Total return is use to measure the performance of an investment. It is the amount of value an investor earns from a security over a specific period of time, typically one year, when all distributions are reinvested. Total return is expressed as a percentage of the amount invested. For instance, a total return of 29% means the security increased by 29% of its original value due to a price increase, distribution of dividends (if a stock) coupons (if a bond) or capital gains (if property investment or fund). Total return is a strong measure of an investment's overall performance (Shipley, 2000; Nweke, 2000).

Income Return: Income return is that portion of a fund's total returns that was derived from income distributions. Income return will often be higher than capital return for bond fund and property investment but typically lower for stock funds. When there is income return plus capital value return, it will produce the fund's total return. It also represents the percentage of the total return generated by the income from property, funds, or account operations (Oyenuga, 2006). Shipley (2000) postulated that, in property investment analysis, the volume of the cost incurable and expected returns analysis are of paramount importance because they necessitate actual investment planning. Planning concerns the future of the real estate investment and the decisive factor are usually sale, lease, and letting.

Capital Return: This connotes amount of money which may be obtained for an interest at a particular time from the prospective investors who are ready to purchase it. It has already been established that those willing and able to purchase property for investment purpose require a return in form of rent per annum (Isaac and Enever, 2002). However the investor may incur outgoings, which are annual expenses such as management cost and repairs. This may be deducted from the rent to arrive at the amount which constitutes the true return-income per annum.

Research Methodology

The target population for this study covered residential properties in the categories of two and three bedroom accommodation purpose-built for investment and have capacity to generate income for the investor in the selected neighbourhoods of the study area. The study adopted a research design in quantitative approach format that reflected the effect of urban infrastructure on residential property investment returns in the study area. The framework required dependent and independent variables. Structured questionnaire was used to source for data primarily from registered estate surveyors and valuers firms and residents in the selected neighbourhoods by adopting stratified random sampling technique. Five hundred and sixty two (562) respondents provided the sampling frame for the study while Cochran (2012) formula for sample size calculation was adopted in order to have a good representation for the study area. From the sample size only three hundred and seventeen (317) copies of the questionnaires, which connotes 56.4% were duly completed, returned and retained for analysis. The model expressed in equation 4 was applied to establish the sample size.

$$n_0 = Z^2pq/e^2 \quad \text{----- Equation (4)}$$

where n_0 represents sample size, N represents population size, p represents 95% confidence level of the population, $q = 1-p$, e represents acceptable error, $Z = 1.96$ which is referred to as the standard normal deviation. The Statistical Package for the Social Sciences (SPSS) was used for data coding, data entry as well as data cleaning. Analytical techniques include descriptive methods of data analysis; Descriptive Graph Mean was adopted and the Analysis of Variance (ANOVA) was also adopted to verify the differences in returns on the selected neighbourhoods.

Data Analysis

Table 1 shows the mean annual total return of 2 bedrooms residential property range from 4.04 to 9.79% and the highest return was found in Tanke neighbourhood at 9.79%. Tanke neighbourhood had income return of 4.97% and highest capital return of 8.87%. Tanke constitutes a major area of property investment with the highest returns.

Table 1: Integrated Average Return on 2 Bedrooms Residential Property Investments (2010-2019)

	Total Return in %	Income Return in %	Capital Return in %
Adewole H/Estate	7.07	7.82	7.38
Sabo-Oke	6.79	4.17	6.62
Unity Area	6.74	4.09	6.65
Gari-Alimi	6.23	4.87	4.36
Onikanga	6.13	4.75	6.38
Tanke	9.79	4.97	8.87
Fate-Basin	4.33	4.74	3.49
GRA	4.96	4.03	4.53
Olooje	4.04	2.61	2.43
Adangba	6.62	4.68	6.94
Ita-Amodu	6.65	4.38	6.27
Centre Gboro	4.04	4.03	4.67
Garage Offa	6.49	4.02	6.47
Gaa-Akanbi	6.13	4.75	6.38
Pipeline	4.96	2.01	3.95
TaiwoOke	4.59	2.96	4.58
Omoda	4.04	4.08	6.48
Kulende	4.45	4.24	6.82
Sango	6.88	4.65	4.68
Mean	6.35	4.26	5.95

Source: Authors' field Survey, 2019

Table 2 below shows the result of analysis of variance and it indicates that there is statistically significant difference in returns across the study areas at p-value (0.000) less than 0.05 level of significant. Therefore, this further suggests that the returns across the study areas are unequal due to difference in property market factors and availability of considerable infrastructure.

Table 2 Analysis of Variance in Returns in 2B/R

Source of variance	SS	df	MS	F	p-value	F crit
Between groups	94.15599	2	47.07799	23.08218	0.000	3.168246
Within groups	110.1374	54	2.039581			
Total	204.2934	56				

Computed from Table 1

shows the mean annual total return of 3 bedrooms residential property and the highest return was found in Fate-Basin area of Ilorin at 10.87%. Onikanga had highest income return at 7.14% while Adangba had highest capital return at 9.04. Fate-Basin area is the major area of property investment with highest returns.

Table 3: Integrated Average Return on 3 Bedrooms Residential Property Investments (2010-2019)

	% total returns	% income returns	% capital returns
Adewole H/Estate	9.87	4.82	8.67
Sabo-Oke	6.79	3.18	6.87
Unity Area	6.68	4.89	4.87
Gari-Alimi	6.87	3.67	4.89
Onikanga	6.56	7.14	6.58
Tanke	8.89	3.45	6.98
Fate-Basin	10.87	3.56	3.56
GRA	3.96	4.67	3.54
Olooje	8.56	2.67	8.56
Adangba	6.78	3.68	9.04
Ita-Amodu	8.87	4.78	6.28
Centre Gboro	6.07	3.38	4.69
Garage Offa	6.49	3.07	6.47
Gaa-Akanbi	4.40	4.07	6.64
Pipeline	8.20	3.87	3.89
Taiwo-Oke	4.59	3.01	3.65
Omoda	6.46	4.05	6.48
Kulende	6.24	3.68	6.48
Sango	4.22	4.75	4.45
Mean	6.51	3.85	5.82

Source: Authors' Field Survey, 2019

Table 4 shows the result of analysis of variance in which there is statistically significant difference in returns across the study areas at p-value (0.000) less than 0.05 level of significant. Therefore, this also further indicates that the returns on residential property investment across the areas are not equal as a result of available infrastructure differences in property market factors.

Table 4 Analysis of Variance in Returns in 3B/R

Source of variance	SS	df	MS	F	p-value	F crit
Between groups	130.3068	2	265.15339	16.85021	0.000	3.178799
Within groups	197.1977	51	3.866621			
Total	327.5044	53				

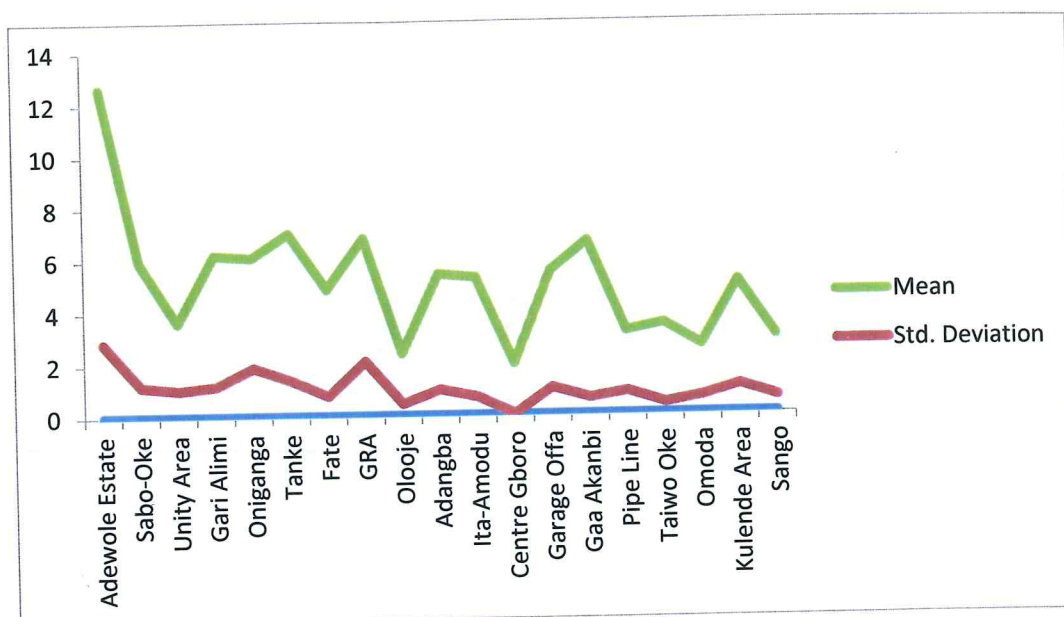


Figure 1: Returns of 2-bedroom bungalows in the selected areas of Ilorin

The graphical representation in figure 1 above shows the result of the analysis of total return on 2 bedrooms residential properties. The average return shows that Tanke area has the highest average return at 9.79%, Fate-Basin has 6.13% and Gari-Alimi has 6.23% average return while Omoda, Olooje and Centre-Gboro have 4.04% as the lowest return among other neighbourhoods. Adewole Housing Estate performed better than any other location but the market is not stable because of the differences between nominal mean and geometric mean at 7.07% and 2.82% respectively which is too wide. Therefore this makes Tanke and Fate-Basin better property investment market than any location for 2 bedrooms residential property investments in Ilorin.

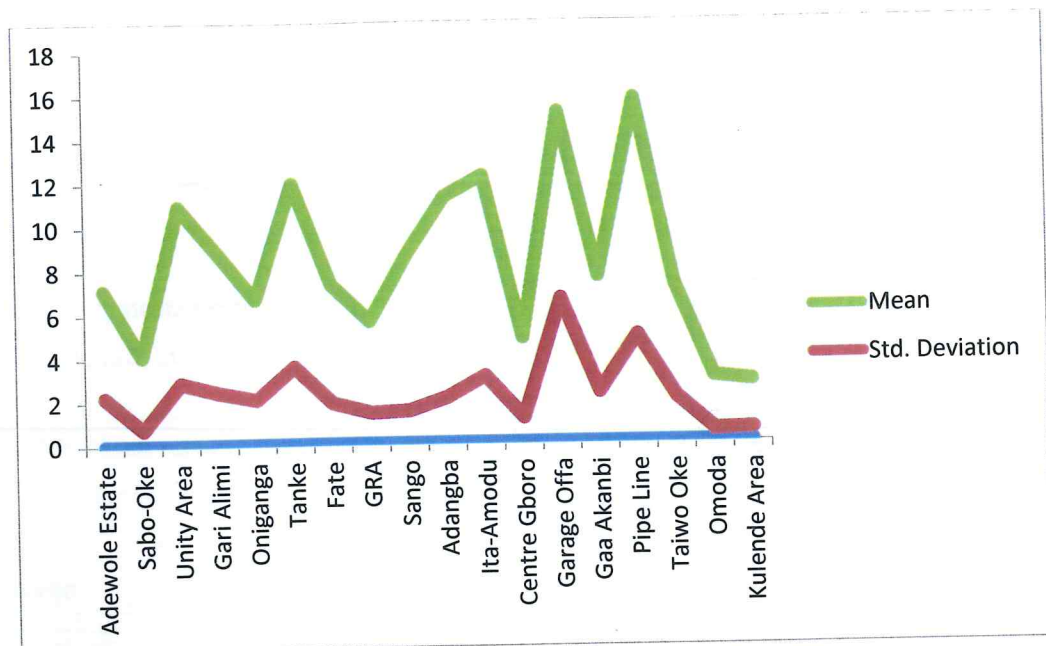


Figure 2: Returns of 3 bedroom bungalows in the selected neighbourhoods of Ilorin

Figure 2 shows the graphical representation of the result of analysis of total return on 3 bedrooms residential property investment across the study area. The average return showed that Adewole Housing Estate has highest average return at 9.87% and Pipe-Line neighbourhood has 8.20% average return, Gaa-akanbi and Sango areas have the lowest average return of 4.40% and 4.22% respectively. From this result it can be deduced that, Adewole Estate performed better than any other location in the study and this makes Pipe-Line a better property investment market than any location for any real estate investor especially in 3 bedrooms residential property in viable locations in Ilorin.

Conclusion and Recommendations

This study has revealed spatial variation on returns on property investment in selected neighbourhoods in Ilorin. The quality of the neighbourhood is determined by the returns on the property investment. The result of the study has shown that urban infrastructure could be the platform upon which returns on residential property investment stands to flourish. Therefore, the quality of neighbourhood development influences residential property investment returns in an ideal property market situation, and thus, calls for provision of quality, adequate and functional infrastructure facilities to boost residential property investment returns' sustainability which could be achieved through Public Private Partnership (PPP) programme. Maintenance concept should be at lower cost rate and also, planned and unplanned maintenance schedule system should be adopted for effective maintenance of available infrastructure as this will keep the available infrastructure functioning and effective in order to enhance property investment returns.

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