Environmental Impact of Location on Residential Property Value in Nigeria: A Scholarly Review of Literature

[1]Obed-Ndukwu, Ihuoma.C, [2]Dr Augusta Ayotamuno,
[3]DrEkentaChukwuemeka

[1]PhD student in Faculty of Environmental ManagementInstitute of Geosciences and Space Technology Rivers State University Nkpolu-Oroworukwo, Port Harcourt, Nigeria.
[2]Research Fellow Institute of Geosciences and Space Technology Rivers State University Nkpolu-Oroworukwo, Port Harcourt, Nigeria.
[3]Senior Lecturer in Department of Estate ManagementFaculty of Environmental Sciences Rivers State University Nkpolu-Oroworukwo, Port Harcourt, Nigeria.

Abstract: *It is a common knowledge that environmental impact and the influence of location externalities are vital to the formation of residential property value. Factors related to location and the environment that positively or negatively impact on residential values include; age of the building, electricity, water supply, size of the rooms/kitchen, number of bathrooms/kitchens, noise pollution, air pollution/quality, storm water/Flooding. Similarly, attributes of residential location such as the proximity to school, workplace, shops/market, hospital, airport, parks and playgrounds, quality of neighbouring structures, accessibility to public transport and sporting facilities, road quality/network traffic volume, transportation etc. are among key factors that determine residential values. The objective of this research is to perform a scholarly review of empirical literature on theenvironmental impact of location on residential property values. Documentary data with regards to the research were obtained from various journal publications and other secondary sources and were studied and reviewed accordingly. Findings of this study revealed that the effect of location on residential value has been exhaustive. However, studies on environmental impact of location on residential properties value in Nigeria-major determinants of residential property value have been minimal. Furthermore, methodologies adopted in most of the studies were not clearly defined. The study recommends that more research should be performed on environmental impact of location on residential property values, and that the methodologies adopted should be appropriately and clearly defined.*
Keywords: *Environment, Location, Residential properties, Property value*

Date of Submission: 18-03-2020   Date of Acceptance: 03-04-2020

I. Introduction

Real property is considered one of the three fundamental necessities of life from time immemorial. The fact remains that unlike food and clothing, real property is difficult to acquire. People need to be housed (shelter), as it is very essential and indispensable because it is the platform of all human activities. Hence, it plays a vital role in social, economic and psychological development of an individual, a state and a nation at large (Ibrahim, 2013). In view of the rapid urbanization coupled with rapid population growth, demand for rental properties has experienced an upsurge. According to Nikolaos, Dimitra and Agapi (2011), the market value of a real estate is affected by its location among other factors.

Residential properties according to Leramo, (1992) are properties providing housing accommodation. They are generally constructed to mean properties primarily acquired for residence". it has the attribute of giving shelter, security, comfort, privacy, investment and personal identity. There are different types of residential properties namely - tenement Buildings (Face-me-i-face-you), block of flat, bungalows**,** duplex (detached houses), semi - detached house and mansionette.Aina and Somefun (2007), classified the form in which residential property can be owned into multi-tenanted, owner occupied and single tenant property.

Property value is defined as the highest price in terms of money which a particular property will fetch in the open market under a free market condition (Nelson, 1999). In the word of Ekenta (2010),property value is the amount of money which can be obtained for the interest on a property at a particular time from persons able and willing to purchase it. There are only two well-known forms of property value such as capital value and rental value.

The initial decision of every organized society, individual or firm is where to locate at a point in time. However, it is clearly understood that the factors that influence such an initial decision completely depend on the reason for the activity to be carried out on that desired location. Location refers to the specific placement of

a house which affects housing choices. Location choices also range from urban to suburban to rural. Ratcliff (1976) defined location as "the sum total of all the topographical, transport and other factors on land use that characterized a particular neighbourhood". Location can be referred to as proximity or nearness to transport, employment, shopping, recreational and cultural facilities and the factors of any nuisance that is found in the area. It also includes all the socio-economic characteristics of the people who are present in the neighbourhood.

Location is among the main determinants of residential property value. It has been realized that location could either be tangible or intangible in nature. Tangible location factors include accessibility, transportation closeness to central business districts, building codes, household preference, demand, supply, population increase, closeness to place of work, community facilities, utilities and services, components or elements that form part of a building structure, zoning regulation, subdivision regulations, environmental protection laws, waste dumpsites, planning restrictions, closeness to toxic or hazardous waste site real estate value (Kohlhase, 1991) and so on.

On the other hand, intangible location factors are those attributes of location that are invisible in nature. They include race, crime, safety, religious inclination, cultural identity, native inclination, security, ethnic background, violent free areas, socio-economic background, and violent prone areas and so on.

The existing wealth of knowledge reveals that tangible location factors are the prime mover in determining the worth of land and landed property (Garrod and Willis, 1994; Anas, 2002). This is of course true, if someone looks at it critically and analyze things in an advance manner. However, the value of landed property could also be determined by other intangible means. Rental values of landed property could be arrived at by looking at many indicators like accessibility, transportation, nearness to school, place of work, place of worship, market, hospital, etc (Yinger, 1979; Wilhelmsson, 2000; Bowes, 2001). Furthermore, the value or worth of a real estate could be arrived at by looking at the public utilities, facilities and services that go a long way in providing a conducive atmosphere and convenient environment for healthy and comfortable living (Clark and Herrin, 2000; Espey and Kwame, 2001).

In most studies, property price and location were analyzed separately (Srour, Kockelman and Dunn, 2002). Ideally, the accessibility of a location is a measure of how well transportation networks interact with land use attributes to satisfy household, business or other preferences. Some analyses include a dependent variable (price of residential property) and several independent variables (physical attributes and location of property) (Trojanek, 2013, Trojanek, 2010; Srour et al., 2002).

From the perspective of economic theory, the environment is a unique resource which delivers an economically utilitarian function for the society. In the above approach, the environment is defined as a set of material (physical and biotic) and non-material elements –objects, forces and phenomena that create a mutually interconnected and dynamic system in spatially limited territory. Environmental amenity refers to a view of scenery of a portion whose eyes can comprehend in a single view (Daniel, 2001). It is a scene generated via observation, either on natural or built environment from one focal standpoint that provides inspiring vistas and pleasing environment while contributing to the economic value and comfortable enjoyment of real property (Maulan, Mohammed and Miller, 2006; Diao and Jr, 2010).

Environmental factors are largely responsible for the value of property. Man's attitude towards the surrounding environment is not neutral because humans search for locations that deliver a high quality of life. Those expectations particularly concern man's daily surroundings, including residential areas or recreational grounds. The quality of that environment largely affects the decisions made in real estate market. Consequently, the environment where a rental property is situated influences the value of property, and its social popularity generates economic benefits (Cellmer, Senetra and Szczepanska, 2012). In fact, one of man's basic needs is an environment characterized by high living standards, security and a high scenic value.

Environmental parameters refer to the quality of the neighbourhood and the quality of the location within the neighbourhood and are commonly measured by ordinal variables. For example, Bender, Gacem and Hoesli (1994) use three levels for the quality of the neighbourhood and three levels for the quality of the location within the neighbourhood. Simons, Bowen and Sementelli (1997) and Brasington (1999) also use ordinal values to measure the impact of environmental variables on house values. Cellmer et al. (2012) goes further to identify three key environmental attributes: the presence of surface water bodies such as lakes, ponds and watercourses, forest cover and land elevation. Their study revealed that the price of properties that directly overlook a lake may be three times higher in comparison with properties that are not attractively located.

Other environmental factors such as the scenic ambiance of a location are an important determinant of real estate value, and it is the critical factor as regards the prices of recreational and residential property. Scenic features significantly contribute to the prices quoted on local property markets. The presence of greenery, forests, water and the arrangement of those spatial features directly affect buyer attitudes and the value of property (Cellmer, et al., 2012). For instance, properties set in natural surroundings generally fetch higher prices than houses in city suburbs. The extra price is paid for the property's scenic value (Wendy and Chen, 2007).

From human ecology perspective, the natural environment influences housing choice resulting in human interaction with environmental components such as land, water, air, land cover and other natural resources (Bubolz and Sontang, 1993; Garrod 1994). Urban and suburban green,akes, rivers and sea, topography as far as green areas, wetlands and mountain areas are considered to represent the most important influential factors. The benefit from these elements are numerous, some of which are the stabilization of the global and local climate, the decrease of flood events, the enrichment of the ecosystems etc. (Morancho, 2003; Xatzibiros, 2007). On the other hand, risk of natural disasters can certainly influence negatively real estate market values (Makropoulos, 2006). Lake, Lovett, Bateman and Langford (1998) assigned monetary value to the negative impacts of road development, specifically noise and visual intrusion. Other authors observed that residential property prices are also influenced by the environmental attributes of a given location, including neighborhood amenities, parks, and the sense of security. An obvious example is the impact of environmental amenities (open space or proximity to parks) or environmental disamenities (air pollution, water pollution, or proximity to noxious facilities) on housing prices through capitalization. When two housing units are identical in all respects except an environmental attribute, the unit with the preferred attribute (e.g., better air quality or greater proximity to the park) can be expected to sell for a higher price. That is, the value that individuals place on the improvement in the environmental attribute should get capitalized into the price of the house (Segerson, 2001).

Researchers have carried out studies on the impact of environmental amenity on house prices and they include Pacione (1984),Garrod and Wills (1992a, 1992b), Boyle and Kiel (2001), and Jim and Chen (2006). Several overseas studies have classified environmental amenity according to natural and built environment and discovered that people prefer view of natural environment to built environment (Scott and Canter 1997; Han, 2010).

In Nigeria, there is equally a growing body of research into the environmental impact of location on its residential properties value. The purpose of this paper is to review empirical literature on environmental impact of housing location on residential properties value in Nigeria given those environmental factors has been identified by many researchers as major determinants of house prices/value.

This paper is structured as follows: The introductory part is followed by the methodology section. Section three is a review of empirical literature on the environmental impact of location on residential properties prices/value. Section four discusses the paper and the final section concludes the paper.

II. Methodology

The research is an archival type where the outline of the study is basically a review of empirical literature on the environmental impact of housing location on residential properties prices/value in Nigeria. Thus the methodology employed in collecting the required data was based on secondary sources of data obtained from academic journals, articles conference papers, textbooks and the Internet.

Empirical literature on environmental impact of location on residential properties value

Various researchers on the field of housing quality attributes and house value study examined and analyzed the impact of the attributes of the location on house value.

Aluko, (2011) carried out a study on "The Effects of Location and Neighbourhood Attributes on Housing Values in Metropolitan Lagos" with the aim to determine the roles of location and neighbourhood characteristics in the determination of housing values/prices. Both primary and secondary data was used in the study. Primary data was gathered through interviews and personal observations. The secondary data were collected from the Lagos State Valuation Office, journals, articles, research reports from government agencies and parastatals. The analysis of variance and multiple regression models were used in the analysis. The overall results show that there are significant variations in virtually all the entered variables. It was revealed that there are spatial variations of neighbourhood and locational attributes on house rental charges.

Aliyu, (2012) carried out a study on Impact of Intangible Location Attributes on the Values of Residential Properties in Jos, Nigeria with the aim of examining the influence of intangible location attributes on the values of residential properties in Jos Metropolis, Nigeria. Data were collected through interviews, questionnaire and direct observation. Two different questionnaires were drafted and administered to both respondents and professional Estate Surveyors &Valuers. Both quantitative and qualitative approach of data presentation and analysis were employed in the data analysis. The analysis was done with the help of Special Package for Social Sciences (SPSS) software and Microsoft Excel Spreadsheet.

Ibrahim, (2013) studied "Impact of Location on Property Value and Business Development in Ilorin Metropolis, Nigeria". The objective of the study was to identify suitable locations for proposed residential and commercial property development. Primary data was gathered by physical observation of property and infrastructural developments, and questionnaire administered on Real Estate Surveyors in real Estate practice to collect data on property rents. Data collected were analyzed and presented mainly by frequency distribution

tables and percentages. It was revealed that residential property values are higher in GRA; these are area mainly designed mainly for residential purpose and they attract high-income group of the society because of their location within the metropolis.

Agunbiade (2015) in his study on 'An Examination of the effect of location on the value of residential properties in Egbu/Emekuku Areas of Owerri Capital Territory, Imo State' analyze and determined the relative roles of location and neighbourhood characteristics in the determination of residential properties value and to identify and recommend reforms required for efficient valuation, investment decisions and proper management of residential properties in Imo State and other cities in Nigeria. The study area was Egbu/Emekuku areas of Owerri, Imo State, Nigeria. A total number of 125 questionnaires were administered to registered Estate Surveyors and Valuers, Estate Agents; Landlords & Residents of the Study Area for data collection and 125 questionnaires were returned and analyzed. The result revealed that neighbourhood and locational attributes have more significant impact on property values than other property features. The possibility of retrieving 100% of the questionnaire administered is in doubt and only one primary source of data collection was used.

Adebisi et al., (2015) studied "Rental Analysis of Residential Properties in Close Proximity to the Federal University of Technology, Akure, Nigeria", examined among others the relationship between students' population off-campus and the rental values of proximate residential properties, and the factors that influence the rental values of residential properties within the neighbourhood of the Institution. The data for the study was gathered through structured questionnaires from twenty (20) registered practicing Estate Surveyors &Valuers in Akure and from the Student Affairs Division of Federal University of Technology, Akure. The data collected were analyzed using Descriptive Statistics (Weighted Means Score and frequency tables and graphs) and Inferential Statistics (Correlation Coefficient). The study revealed that the major factors often discovered from relevant literature to determine rental values of residential properties such as facilities and condition of repair among others were the least ranked within the neighbourhood of Federal University of Technology, Akure. The study also revealed that there was a positive relationship between the population of the students of Federal University of Technology, Akure living in the private rented sector and rented values of selected residential properties over the years. This indicates that demand pressure from students and residents contribute immensely to changes in the rental values within the area.

Rotimi (2016) studied the "Critical determinants of residential property value: professionals" perspective". The study area was Lagos, Nigeria. Data were collected from response of well-structured questionnaire administered to valuers practicing in Lagos metropolis. The result revealed that location, neighbourhood characteristics and property state of repair, are the most highly significant variables that are influential on the property value in Lagos metropolis. Sufficient questionnaires that could yield reliable result were used for data collection.

Enam et al., (2017) examined "The Effect of Location on Residential Property value in Lokoja (A case study of Lokongoma phase 1)". The study area was conducted in Lokoja, Nigeria. A total number of 123 questionnaires were administered to gather information from primary source out of which 75 were returned and analyzed. There is high relationship between location and property value. Insufficient questionnaires that could limit reliable result were used for data collection.

Jimoh and Igeh et al, (2017) conducted a study titled "Public infrastructure Vs Residential Property Rental Value in Lagos, Nigeria". The study area was Lagos, Nigeria. A total number of 324 questionnaires were administered for collection of data and 269 were retrieved. The result revealed that there is a significant relationship between infrastructure and property value. Sufficient questionnaires that could yield reliable result were used for data collection.

Ayotamuno and Obinna (2018) studied private housing productivity in Greater Port Harcourt, Nigeria with the aim to ascertain the state of private residential housing estate development in Greater Port Harcourt City and the resources of private residential housing and the relative importance of private vis-à-vis public residential housing delivery. Data were collected through questionnaire, interview and direct observation. Univariate and multi-variate statistical analytical techniques were used for the Data analyses. The study revealed that pace of private sector housing development in Greater Port Harcourt City was far short of what is needed to satisfy demand, given a population of the order of 2 million growing at 5.8% per annum.

III. Discussion

Most of the studies focused on accessibility as the primarily locational factor that influences residential property values/prices. Findings from various researches on location and house value study revealed that houses situated in choice areas that are accessible place of employment, public transport and other related amenities, enjoys better residential values compared to those similar residents that are located at disadvantage positions.

However, environmental variables were not highlighted as vital factors that could have great impact on residential property value. Furthermore, population of the study area was not considered in most studies while choosing the sample size. Consequently, the methods adopted for obtaining sample size in several of the studies

examined, were misguided approaches as the approaches were not clearly defined. Lastly, questionnaires were often used as the only source of primary data where personal observation and interview could also be used to obtain a more reliable result.

IV. Conclusion

In conclusion, location characteristics are vital factors that need to be properly scrutinized by estate surveyors and valuers before assigning rental or sales value/prices to a resident. The review shows that the value/price assigned to the location of a residential property is strongly influenced by factors such as; accessibility to workplace, public transportation, proximity to schools, among others. However, environmental impact of location on residential properties value should be investigated. Suitable approaches in determining population and sample sizes adopted for a given study should be clearly defined in order to narrow the literature gap on the subject matter.

References

[1]. Aina, O.C &Somefun, A.O. (2007). The Effects of Facilities Provision on Rental Values of Residential Properties in Ikeja, Lagos State. Journal of Land Use and Developments Studies. 3(1), 60 - 67.
[2]. Adebisi, O.S., Ezeokoli, N.B, Oletubo, A.A. &Alade, T.J. (2015). Rental Analysis of Residential Properties in Close Proximity to the Federal University of Technology, Akure,Nigeria.Journal of Economics and Sustainable Development, 6(10).
[3]. Aliyu, A.A. (2012). Impact of Intangible Location Attributes on the Values of Residential Properties in Jos, Nigeria. Unpublished PhD Thesis.
[4]. Anas, A. (2002). Residential Location Markets and Urban Transportation: Economic Theory, Econometrics and Public Policy Analysis. New York Academic Press.
[5]. Ayotamuno, A. &Obinna, V. C. (2018). Private Estate Housing Productivity in Greater Port Harcourt, Nigeria. American Journal of Educational Research and Reviews, 3(27), 1 – 14.
[6]. Bender, A.R., Gacem, B. and Hoesli, M. (1994). Construction D'indicesImmobiliersSelonL'approcheHédoniste. Financial Markets and Portfolio Management, 8, pp. 522-534.
[7]. Bowes, R.D. (2001). Identifying the Impacts of Rail Transit Stations on Residential Property Values. Journal of Urban Economics, 50(1), 1-25.
[8]. Brasington, D.M. (1999). Which Measures of School Quality Does the Housing Market Value? Journal of Real Estate Research, 18, pp. 395-413.
[9]. Cellmer, R., Senetra, A., and Szczepańska, A. (2012). The Effect of Environmental Factors on Property Value, (paper presented at the FIG Working Week 2012 TS06H - Valuation - Environmental Factors 5748, Rome, Italy), www.fi g.net (access may, 2019)
[10]. Clark, D.E. & Herrin, W.E (2000). The Impact of Public School Attributes on Home Sale Prices in California, Growth and Change. A Journal of Urban and Regional Policy, 31(3), 385 - 407.
[11]. Ekenta, E. (2010). Basic Theory and Application of Modern Valuation; Alheri Books, Port Harcourt, Nigeria
[12]. Epsey, M. & Kwame, O. (2001). Neighborhood Parks and Residential Property Values in Greenville, South Carolina. Journal of Agricultural and Applied Economics, 33(3).
[13]. Garrod, G. & Willis, K. (1994). An Economic Estimate of the Effect of a Waterside Location on Property Values; Environmental and Resource Economics, 4, 209 - 217.
[14]. Han, S.S.,Yu, S.M., Malone-Lee, L.C., &Basuki, A. (2002). Dynamics of property value distribution in an Asian metropolis - the case of landed housing in Singapore, 1991-2000. Journal of Property Investment & Finance, 21 (3), 250-270.
[15]. Ibrahim, T.A. (2013). Impact of Location on Real Estate Value and Business Development in Ilorin Metropolis, Nigeria. International Journal of Current Research, .5(10), .2735-2738.
[16]. Jimoh, D.A &Ige, V.O. (2017). Public Infrastructure vs. Residential Property Rental Value in Lagos, Nigeria. Journal of Sustainable Development Studies 10(1), 17-33.
[17]. Kohlhase, J. (1991). The Impact of Toxic Waste Sites on Housing Values. Journal of Urban Economics, 30, 1-26.
[18]. Lake, I.R., Lovett, A.A., Bateman, I.J. and Langford, I.H. (1998). Modeling environmental influences on property prices in an urban environment, Comput. Environ. andUrbanSystems, 22 (2), 121-136
[19]. Leramo, G. A. (1992). The Groundwork of Property Valuation. Kaduna Polytechnic Press, Kaduna.
[20]. Makropoulos K., (2006, October). Natural disasters: Earthquakes and protection measures, (Paper presented at the 15th Conference of Concrete, Alexandroupolis)
[21]. Morancho B.A., (2003). A hedonic valuation of urban green areas, Landscape and urban planning, 66, 35-41
[22]. Nelson, A. (1999). Transit Stations and Commercial Property Values: A Case Study with Policy and Land-Use Implications. Journal of Public Transportation, 2(3), 77-93.
[23]. Nikolaos .K.,Dimitra .V. and Agapi .X. (2011). Real Estate Values and Environment: A case Study on the Environment on Residential Real Estates Value. International Journal of Academic Research, 3(1), 861-868.
[24]. Segerson K., (2001). Real Estate and the Environment: An Introduction. Journal of Real Estate Finance and Economics, 22(23), 135-139.
[25]. Simons, R.A., Bowen, W. and Sementelli, A. (1997). The Effect of Underground Storage Tanks on Residential Property Values in Cuyahoga County, Ohio. Journal of Real EstateResearch, 14, 29-42.
[26]. Srour, I. M., Kockelman, K.M. and Dunn, T.P. (2002). Accessibility Indices: A Connection to Residential Land Prices and Location Choices. Transportation Research Record, 1805(1), 25-34.
[27]. Trojanek, M. (2013). Customer Behavior Patterns on the Primary Housing Market in Poznan in the Period 2010-2011. Real Estate Management and Valuation, 21 (4), 47-53.
[28]. Trojanek, R. (2010). Dwelling's Price Fluctuations and the Business Cycle. Economics and Sociology, 3 (2), 67-77.
[29]. Wendy, C.Y.J. and Chen, Y. (2007). Consumption Preferences and Environmental Externalities: A Hedonic Analysis of the Housing Market in Guangzhou. Geoforum, 38(2), 414–431.
[30]. Wilhelinsson, M. (2000). The Impact of Traffic Noise on the Value of Single-Family Houses. Journal of Environmental Planning and Management, 43(6), 799 - 815.
[31]. Yinger, J. (1979). Estimating the Relationship between Location and the Price of Housing, Journal of Regional Science, August, pp.