

# Spatial Analysis of Effect of Location on Prices of Transacted Property in Ile-Ife, State of Osun, Nigeria Using GIS Tools 2017-2018

Awotungase Abayomi S.<sup>1</sup>, Fagbemi Kayode B.<sup>2</sup>, Hassan Yakubu O.<sup>3</sup>, Olaitan, A.P.<sup>4</sup>, Ibrahim-Adedeji K.B.<sup>5</sup>; Talabi, J.I.<sup>6</sup>, Apete-Adebola Lateefah A<sup>7</sup>

<sup>1,6</sup>*Department of Architecture Technology, Lagos State Polytechnic, Ikorodu, Nigeria*

<sup>2</sup>*Department of Architecture Technology, Federal Polytechnic, Ile-Oluji, Nigeria*

<sup>3</sup>*Post-graduate Student, Department of Urban and Regional Planning, University of Lagos, Akoka, Nigeria*

<sup>4,5</sup>*Department of Urban and Regional Planning, Lagos State Polytechnic, Ikorodu, Nigeria*

<sup>7</sup>*Department of Quantity Surveying, Lagos State Polytechnic, Ikorodu, Nigeria*

**Abstract:** - This study analyses the effect of location on price of selected transacted property in Ile-Ife, State of Osun, Nigeria using GIS, with a view to providing information for property owners and government that will guide them in future transactions. By assembling cases of land transactions in the study area from March 2017 –February 2018, this study analyses the connection between physical accessing of sites, the spatial location of their local environment, along with vacant land prices of the respective sites. This finding provides powerful connection between variations in the regulatory environment around the study area and the prices specifying raw land as an input to residential or commercial advancement. However, the study relates variations in land prices to the prices paid by prospective buyers in the study area.

**Keywords:** Analysis, Location, Selected, Spatial, Transacted, Property

## I. INTRODUCTION

It is likely that the most cherished asset possessed by many individuals is their residential property and can serve as a strong basis for the wealth indicator of a residential property showing socioeconomic status (SES). Di et al. (2003) and Coffee et al. (2012) stated that home equity produced 21% net wealth of households in USA. Household wealth percent signified by residential property was significant for households with low SES, resulting to an estimated household net wealth of 50%. Property implies an outstanding proportion of the GDP (gross domestic product) of an economy (Gibb and Hoesli).

Land price fundamentally indicates the economic value and attractiveness of a particular site as well as the amenities present at that location. The respective amenities may comprise a collection of diverse attributes that ranges from the productive nature of an agricultural rural site to the valuable features or worth of an urban neighbourhood that surrounds a specified location. Thus, in urban areas, varying land prices may be an indication of governmental policies and local externalities alongside geographical and locational benefits of specific sites (Kok, Monkkonen and Quigley).

In and around urban areas, a number of factors like housing cost within metropolitan areas along with spatial differences in the housing and population densities (which includes the non-residential properties capital intensity) are largely affected by varying land prices. An alternation between constructions of residential as well as non-residential property implies that, in whatever representation, there will be less pronounced price variations of commercial property and housing in intra-metropolitan areas compared to intra-urban areas land prices (Albouy and Gabriel).

Due to their spatial character that largely relies on geographical space location and geometry, it is possible to use geographic information systems (GIS) in real estate trade. This implies that the coordinate system can accommodate all real estate. Information on transaction prices of real estate is also spatial in nature owing to the prices connection with the space size and the topological interactions between specific characteristics. Rothenberg et al. (1991) opined that the wellbeing of a society relies on an essential awareness of housing market structures. The three things that mostly contribute to the value of residential property are, “location, location, location (Bourassa et al., 2003).

Location as well as the associated social geography matters so much asocial geography describes composition on the one hand (Shevky and Bell), and as pointed out in this research, includes the related spatial difference. One outstanding characteristic of a residential property as a traded commodity has to do with its location specific capital or stationarity, and this serves as a basis for making location a major determinant of the value of a residential property (Galster). Whereas supply and demand of residential property is often expressed with the aid of an economic equilibrium, the inclusion of location stretches this theory to include spatial equilibrium in which price is influenced by location and proximity (Thrall). To ascertain the best way of modelling the value of a residential property, it is necessary that one understands how

possibly desirable locations of residential property can be utilized as a potential local area SES indicator.

The locational facet of residential property alongside the assertion that a collection of residential properties are perhaps designated as practically valuable is mostly defined as a residential property market. While a residential property market concept that comprises various interrelated submarkets stands as bedrock of real estate transactions, the best approach to obtaining the spatial boundaries of such submarkets is yet to be decided upon in this study (Watkins) and Coffee (2012). The literature's expressed themes revolve around the established understanding that submarkets can best be defined using structural and spatial identifiers. Watkins (2001) acknowledged that submarkets should be derived from data rather than on the basis of some a priori definition such as suburbs or postcodes (Adair, Berry and McGrea). Such data should reflect the underlying residential property real estate market structure of the area under study and not rely on residential property characteristics such as size, style, age, number of bedrooms (Coffee et al, 2012). However, the aim of this study is to analysis the effect of location on price of selected transacted property in Ile-Ife with a view of providing information for property owners and government that will guide them in future transactions.

## II. LITERATURE REVIEW

Essential to the operation of a city are public transit networks (Gallimore). In a bid to reduce their walking distance to public transit, some buyers when procuring a property, will want to ensure its proximity to major land use options such as school, bus, train or subway station. Thus for some buyers, the closeness of a property to public transit turns out to be an attractive valuable feature just like an extra bedroom or a garage. Meanwhile, regarding determinants of values of urban land, there is still a lack of comparable empirical body of evidence. Majorly, values of land are determined from differences in housing selling prices through creation of assumptions regarding the production function for housing (Kok, Monkkonen and Quigley) and (Alston).

Nonetheless, all the houses, recreational areas and working buildings are included in the built environment withal of these different functions connected to each other by the technical infrastructure. Here, the most bulky components of the built environment remain housing lands. In residential service areas, a number of networks existed that connects them to one another and eventually established the built environment, giving the city a fundamental identity.

Housing land assessment cannot only be conducted based on its structural features; it should also be done physiologically alongside other urban and spatial environment. Creating a human community that is environmentally healthy both psychologically and socially is highly necessary. Land value is dependent on two factors, viz; a building's physical characteristics and the built environment that surrounds that building. There are a number of land related variables that

defines the worth of that specific property like the inner specificity of the housing, the unit of neighbourliness the housing belongs to, the local feature of the neighbourhood unit, the distance from the housing land to the city's important service areas and centres, the scenery factors and even the aesthetical and architectural structures, etc.

### 2.1 The Demand Factors

Similar to a number of other products, supply and demand forces play a very vital function in a property's estimation. There are many explanations to influence of demand factors. Demographic characteristics modification by in-migration could result to a hike in demand for housing as well as other facilities. In the same vein, an increase of paying capacity result to higher demand for land. Also, other determinants like social factors include typical ages, changes in family sizes, population decline or growth, along with attitudes toward law and order, education levels and prestige. In the market, assumption is considered a consequence of demand. The value of land appears to be raised artificially simply because a particular advantage is anticipated in the hope that after some time, the site could have location or infrastructural advantages. Thus, increasing prices to unjustifiable limits discourages land supply.

### 2.2 The Supply Factors

Authorities in charge of development have been acquiring lands on a large scale, a trend that has led to control of the land supply. This process commonly referred to as land banking is quite good because the authority is now able to release already developed land for market purpose. Regrettably, the authorities in charge of development have failed miserably in this light due to countless reasons. From the development authority, it was gathered that the reasons for this scarcity is shortage of developable land, high development cost, political considerations as well as inability of required standards reflecting the affordability realities on ground along with administrative delays. This in association with legal bottlenecks and government organizations inefficiencies are major explanations why land supply is improperly managed.

## III. METHODOLOGY

The property market is extremely intricate, and traded properties differ in location as well as non-spatial attributes (area, shape, and infrastructure). The influence of the evaluated attributes will be assessed with the use of statistical analysis and this method will be deployed to analyse the spatial distribution of land values.

The proposed methodological concept can be divided into the following stages:

1. Identification deferent area within Ile-Ife
2. Recording the price of the land
3. Picking of coordination of the land

4. Measuring of the distance of the land to one or two reference point
5. Determining the area using time series analysis

#### IV. RESULT OF FINDINGS

Ile-Ife area is known for its geographical multiplicity with its respective attributes certainly revealed in land prices. Further, various geographic features of the local environment of each parcel are measured using geographic information system (GIS) techniques.

Plan 1: Spatial Location of Transacted Property in Ile-Ife



Source: Google Street map 2018

After measuring the distance of each parcel, the share of land within each parcel was calculated alongside others in proximity to major urban area in the town specifically Mayfair and Lagere (figure 1 and 2).

Figures 1 and 2 shows a summary of the sales of land which are matched to their respective geographical coordinate, and information on plot size in relation to their locations. Here, land parcels average selling price was about N878.7 per

square meter. However, substantial variation is observed in the data along with some large parcels.

For inventory or speculation (“hold for development”), about 36% of the lots were purchased whereas for industrial, commercial, single family or multifamily construction another 54% were purchased. Public facilities, public space and mixed use were the proposed use for another 6% of sales, whereas the remaining parcels planned use is still not known.

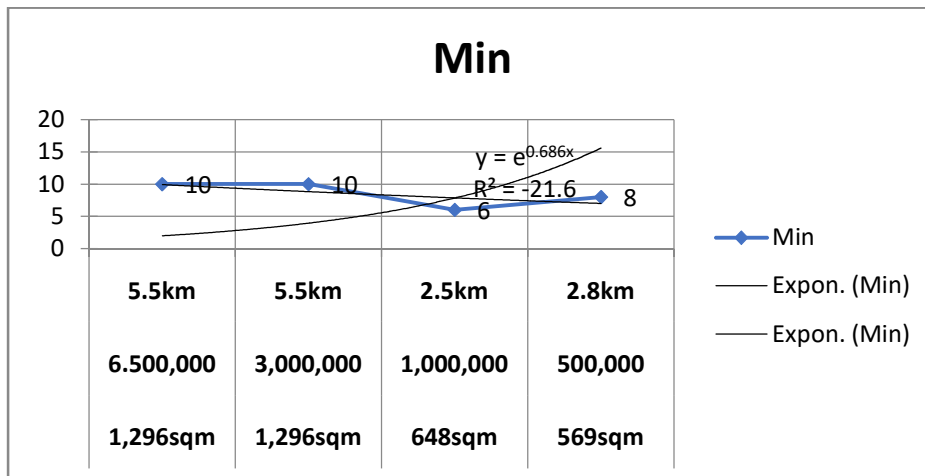


Figure 1: Variation of Land Price in case 1(Mayfair area)

Plot also called lot size along with the distance to major urban centre (as well as the determinants for each quarter of the year) explains above half the variation in vacant land prices per square meter. An alternation of the job access determinant for the simple distance factor raises the clarified

variance to 60%. The present condition of land and the proposed use of land are also necessary; when the current land condition estimates and expected usage are considered, it explains variation in land prices.

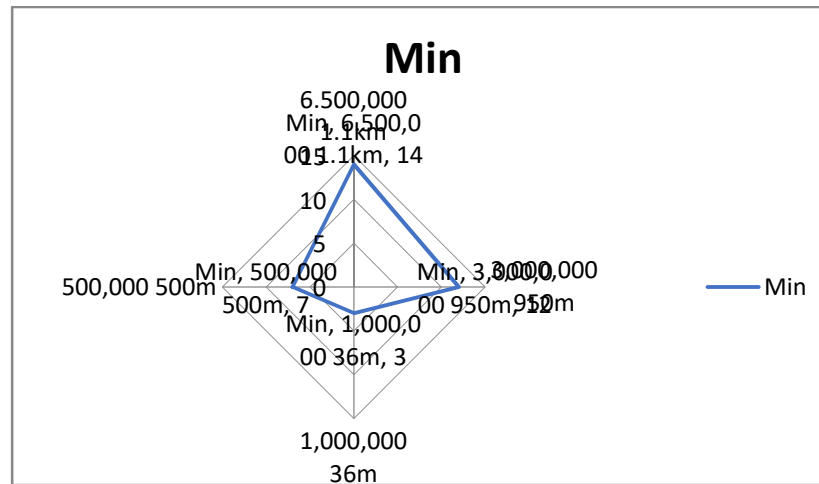


Figure 2: Variation of Land Price in case 2 (Lagere area)

Not surprisingly, raw land is sold at a substantial discount in relation to fully developed lots. Ceteris paribus, comparing this unknown category, lots purchased for investment inventories are sold at a slight premium, whereas land parcels meant for specific development activities are sold for a greater premium, particularly those projected for commercial, multifamily, or student hostel development to compliment the housing demand of student in Obafemi Awolowo University, Ile-Ife. From this, proximity to urban area determines the price of land as depicted in figure 1 and 2.

## V. CONCLUSION

Studies on the contributing factor of urban areas land prices usually base their conclusions on housing transactions which combine land payments. These results are thus based on assumptions regarding the production function for land and the correct collection of non-land inputs. Contrariwise, this paper exploits micro data on a large sample of land prices in Ile-Ife, Osun State, Nigeria to analyse the link between land values and the spatial location (as depicted in plan 1) of land, the quality of the actual neighborhoods where it is located, and the conditions surrounding its regulated use. It is observed that intra-urban variations along these dimensions are essential determinants of prices of land.

Location markedly influences prices of land, income growth, jobs in the nearby area, and school quality are strongly and positively related to the price of land. It is also observed that these differences in prices of land have large effects on regional housing prices. Furthermore, the geographic variation in the restrictiveness of the regulatory and legal environment was estimated and reflected in the transaction prices of land. This has large effects on land values, partly because local

land-use regulation is so widespread and partially because values of land signify such a great fraction of house values in the study area. Lastly, these studies illustrate the extensive complementarity between intra- and interurban examination of the impacts of land supply and price.

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