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The Influence of Housing Components on Prices of Residential Houses: A Review of Literature

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Abctract: It is generally acknowledged that housing components which comprises of location, neighborhood and structural attributes are critical to the determination of residential property value. The structural components of housing which encompasses the age of dwelling, quality of design, room size, number of living rooms, bedrooms, toilets and bathrooms, quality of constructional materials wall fence and gate, landscaping, layout plan of dwellings and availability of space may influence residential house prices. Equally, the attributes of locational components of a residential property such as the proximity to place of employment to shopping centers, markets, accessibility to public transport and sporting facilities may as well influences its value. Residential neighborhood which is a geographical unit within which given social relationship exist play a very prominent role in determining house prices. Neighborhood components constitute both amenities and disamenities and serves as a major factor in determining house prices due to its spatial linkage to the housing market. The aim of this study is to critically review empirical literature on the influence of housing component on prices of residential houses. Documentary data in respect to the study were gathered through various secondary sources. Results obtained from the various studies indicated that neighborhood amenities and disamenities, attributes of residential location as well as structural components of housing are major determinants of residential house prices.

Key words: Housing, residential, neighborhood, location, house value

INTRODUCTION

Housing, according to Golubchikov and Badyina is the basic social condition that defines the quality of life and welfare of the people and places. Where houses are located, how well they are built and designed and how well they are modeled in to the environment, social, cultural and economic fabrics of communities are attributes that in a way affect the daily lives of people, their security, health and wellbeing. Housing as defined by Shinnick (1997) is a complex goods consisting of many different components such as structures which comprises all the physical attributes of a dwelling, accessibility and facilities that constitute a bundle of services related to housing and the components of a neighborhood which include the environment and the society in which the dwelling exist.

According to Cloise and Joan (2009) housing is beyond the physical dwelling, it encompasses all that is within and surrounds the dwellings. It is the creation of special environment in which people live and grow. To determine the value of a residential house is very complex and dynamic and as such requires the analysis of various components of residential housing. Residential location, dwelling characteristics and neighborhood attributes are important components that required to be critically examine and analyze in order to ascertain the fair market value of a given house.

Dwelling units are placed on a specific location and as such differs in terms of their surroundings, structure of the community where they are located and their nearness to job opportunities and market places. Thus, the influence of location on housing market and housing price determination cannot be divorced (Aluko, 2011). Uyar and Brown (2007) on their own submission echoed that dwellings in the same neighborhood enjoy similar neighborhood's location, economic and social characteristics.

Poudyal *et al.* (2009) also opined that residential housing prices determination depends largely first on access to those locations which support related uses such as proximity to research place, shopping centers,

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distance to schools, nearness to recreational facilities, accessibility to public transport, open space, proximity to place of entertainment, place of worship, among others.

The second emphasis was on dwelling improvements and material used. The quality of constructional materials and the level of structural improvement made to housing may also be a significant factor in determining house value. Major consideration in this regards are the physical features such as the type, style and quality of various dwelling components. Structural improvements such as the fence wall gate, landscape, swimming pool, gardens and other improvements made within the confinement of the house also falls on this group. The third emphasis was on the age and condition of the dwelling. Age and condition of a dwelling are also important factors that could influence house value.

Neighborhood attributes on the other hand plays a very important role in the process of determining residential property value as they also required market analysis before arriving at fair market value of any giving residential house. Thus, the influence of neighborhood components on residential property cannot be ignored. Residential housing is heterogeneous goods that contain numerous features which have value for the consumer. The market is often characterized by complicated, highly durable units each of which is located in a neighborhood with many attributes.

It is in this regard that this study is undertaken with a view to critically review literature on the influence of housing quality attributes on values of residential properties from global perspective.

MATERIALS AND METHODS

The research is basically an archival type where the outline of the study is a review of empirical literature on the influence of the components of housing on residential property value. Relevant data for the study were obtained through secondary sources which include academic journals, conference papers, articles, textbooks and the World Wide Web (cyber internet).

The influence of residential location on house value: Various researchers in the field of housing and house price estimation, examines and analyzes the influence of the residential location on housing prices. Few of the notable researchers in this field of study include Aluko (2011) who carried out a study on the influence of location and neighborhood characteristics on housing prices in Lagos Metropolis. The aim of his study was to examine the relative role of house location and neighborhood attributes on of house prices.

Data were collected from both primary and secondary sources of data collection. The study area was divided in to eight sub-areas from sixteen local government areas of Lagos state within the Lagos Metropolitan city. One thousand and five hundred questionnaires were distributed accordingly in the fifty three residential areas scheduled for the study and targeted at 135,820 residential households. Systematic and Random sampling techniques were employed in selecting the respondents sampled for the study.

The data obtained for the study was analyzed using the descriptive and inferential statistics. Analysis of Variance (ANOVA) and multiple regression models were used in testing for the variations in house prices at different residential locations and neighborhoods. Variables from various housing components such as location, neighborhood and dwellings were used as the independent variables and house prices as dependent variable.

The results reported from the findings shows a significant variation in almost all the study variables. The results also indicated a spatial variation of location and neighborhood attributes on house prices which was observed to be specific in within group means than between group means. The results further submitted that location and neighborhood components are more significant on house price formation specifically when small geographical housing units are studied. The rationale for adopting a sample of 1500 for a population of 135,820 was not disclosed and could lead to a bias judgment.

Similar study conducted earlier on the influence of location on house prices by Kiel and Zabel (2008) used the hedonic housing price modeling to develop the concept of 3L which means location, location and location. This was used to discuss the house prices. Their findings indicated that different geographical locations have different significant impact on house prices. The study also found out that people pay more attention to wider location and neighborhood attributes in determining house prices. The study however revealed that location is the most significant component that influences housing prices.

Again on location, Chun (2010) studied the influence of residential location on house prices using the Artificial Neural Network model (ANN). The aim of the study was to evaluate the extent to which the location attributes and environmental factors influences house prices. A sample of 1442 residential houses was picked for the study in the city of Valencia, Spain. The 43 variables from both the internal and external features of the houses were used. The result indicated that residential location has an over bearing influence on residential house prices.

Still on location, Amenyah and Fletcher (2013) conducted a study on the influence of location and structural components of housing on rental values of residential properties in Accra Metropolitan area of Ghana. Data was obtained on building attributes which includes number of bedrooms and availability of facilities and amenities within the dwellings across three different residential locations in Accra, Ghana. The residential locations include: East legion, Osu and Chorko. The residential neighborhoods were picked from the low density medium and high density residential areas respectively based on residential zone classification by Accra Metropolitan Assembly (AMA). A sample size of 100 households were selected for the study with East legion having 10 households due to its size and house distribution as reported by the researchers. The 59 households and 31 households for Osu and Chorko, respectively.

The study administered questionnaires which are randomly distributed only to the willing households on rental apartments. Direct observation and interviews of persons in the selected areas were also carried out. Two-way contingency table was used to analyze the influence and relationship that exist among the variables selected for the study. Analysis of Variance (ANOVA) technique was also used to assess whether there is a significant mean rental differences across the three locations. Pearson's Chi-square value was computed to test the significance of the association and Cramer's V was employed to verify the strength of the association.

The results from the findings revealed that the influence of location on residential property prices values is statistically significant. The result further shows a significant influence of dwelling features like number of bedrooms, availability of facilities (bathroom and toilets) as well as availability of amenities (electricity and water supply) on rental values of residential houses. Few number of variables used in the explanation of the influence of location on housing prices were observed to be grossly inadequate to justify the outcome of the findings.

Influence of residential dwelling components on housing prices: A house comprises of numerous attributes, each of which add value to the house or otherwise subtract value from the house. The dwelling attributes of housing that have been examined to have a great influence on house prices includes the number of living rooms and the bedrooms, size of both living and the bedrooms, number of toilet and bathrooms, level of structural improvement including interior and exterior decorations, age of the building, architectural design of building as well as the quality of building materials and the available space.

Various researchers that have studied the relationship between housing components and house prices have identified dwelling features as key determinants of housing prices. Opoku and Abdul (2010) also stated that structural housing components have been mentioned by many sources as among major determinant factors of household home-buying.

Owusu (2012) for example, analyzes the influence of dwelling features on residential house prices in Kumasi, Ghana using the quantitative research approach. He obtained data from secondary sources which includes estate firms, estate agents and the land sector agencies in Kumasi, Ghana. The empirical result of the research was based on a total of 18,652 residential property valuation data obtained between the periods of 2005-2010. The study used the attributes of location and dwellings as independent variables and house prices as the dependent variable. The data obtained was analyzed with the aid of the descriptive, the traditional hedonic housing price model and chow test. The findings shows that among other things number of rooms, floor and age of building, swimming pool, car park wall fence and gate constitutes major factors in estimating residential house prices.

Joshua (2014) evaluated the critical factors that determine the rental value of residential houses using three density areas of Ibadan Metropolis in Nigeria. He adopted the random sampling method in selecting 624 residential houses from 3120 tenement houses available in the records of estate surveying and valuation firms operating in the study areas. Structural housing components and the attributes of location were the independent variables and house price as the dependent variable. The hedonic housing price model was employed as a tool for estimating the influence of the housing components on house prices.

The results indicated that different factors influence house rental values at various density areas. Structural components such as number of bathrooms and living rooms were discovered to be most significant to tenement buildings. Burglary alarm and number of bathrooms and living rooms were observed to be critical to bungalow houses in the whole city of Ibadan. For the duplexes, number of toilet was identified as a major factor that determines rental values in the area. The results further revealed that in the low density areas, residential location play the most prominent role in determining rental values of both the bungalow and the detached houses. For the medium density areas, number of rooms and the existence of burglary alarm were observed to be key determinants of house rental prices.

Tan (2012) also examined the housing needs and preferences of first-time buyers in Kuala Lumpur with emphasis on certain characteristics of a dwelling such as

the number of bathrooms, bedrooms, living rooms, kitchen, among others. The study revealed that major preference is often given to number of bedrooms.

Similar study carried out by Opoku and Abdul (2010) find out that in Saudi Arabia the number of bedrooms, bedroom size and the number of bathrooms are major housing components that influences house prices. The study of Hurtubia highlighted that in western countries the numbers of rooms or bathrooms in a house is a very significant component that is mostly considered by households in making home-ownership decisions.

Moghimi and Jusan (2015) investigated the priority of housing components preferences from user perspective in Malaysia. The aim of the study was to evaluate how Johor Bahru resident's conceptions are affected by various structural characteristics of housing. The main purpose of the study was to examine the perception on the priority of structural housing components from the point of view of house consumers. The study adopted the Non-Structural Fuzzy Decision Support System (NSFDSS) model as a tool for determining the perceived relative importance of the set decision criteria.

Findings indicated that six factors such as space organization of a building, adequacy of ventilation, space characteristics, air conditioning units, adequate daylight distribution and floor finishing were identified as major structural housing attributes that influences the preference of house buyers choice in Johor Bahru, Malaysia. Meanwhile, the influence of structural defects on house prices and buyers preference is also identified as a very important factor.

The influence of residential neighborhood on house prices: Good numbers of researchers on housing components and house prices have echoed on the significance of residential neighborhood on house price determination. For instance, Feng and Humphreys (2012) examined the influence of professional sporting facilities on house prices in US cities using the hedonic housing price technique with spatial autocorrelation. The study was based on the estimate of 1990 and 2000 census block groups within five miles of every sporting facility in US cities. Result from the findings indicated that the median house values in block groups are greater in block groups closer to the sporting facilities. The result also shows that professional sporting facilities are neighborhood amenities that could influence house prices positively.

A study conducted by Lee on the influence of leisure and sporting facilities on house prices using number of dwelling components such as the living area, number of rooms, building age, number of stories, number of floors as explanatory variables for structural components and residential neighborhood variables for sport and leisure facilities, revealed that sport and leisure facilities have significant influence on house prices with cross-level interaction at the same time.

Similarly, Ahlfeldt and Maening (2010) studied the influence of multi-purpose sporting facilities on residential property prices in Berlin. Their findings show that the presence of sport facilities in a given residential neighborhood increases the value of some residential houses located within 3000 m of the facilities. The result also revealed that the prices of residential houses declines as the distance progresses further away from the sport facilities. However, some level of negative influence was also recorded due to the presence of sporting facilities in some neighborhood even though not statistically significant.

Different result was observed with the application of Hedonic housing prices model by Kiel and Zabel (2008) to examine the relationship between proximity to football stadium and residential property prices. Their findings clearly showed that there is no relationship between residential property prices and proximity to the football stadium.

In another neighborhood and house prices study, Feng and Lu (2010) evaluated the influence of educational facilities on residential property prices in Shangai, China. Two criteria: the school quality and quantity and two batches of the government naming process of "experimental model high school" were taken as explanatory variables. Monthly panel data of housing prices and fifty two regional distributions of high schools were obtained. The result of the findings showed that presence of high number of quality schools could increase house prices by over 21% on average. However, the presence of low quality schools in the neighborhood increases the house prices by little above 5%. The finding also showed that educational facilities are amenities that may have a positive influence on house prices. The use of high quality school as a measurement criteria may not be consider adequate except if the area or district is known to be a school district. For the district without schools, the most appropriate explanatory variable in this regard should be the distance to school from the house.

In a related study, Wen *et al.* (2014) examined the influence of educational facilities on house prices using data on housing price and educational facilities of 660 communities in Hangzhou, China. Hedonic pricing model and the spatial econometric model was adopted for the analysis of the influence of the educational facilities on house prices. The result from findings revealed that educational facilities have positive influence on house prices. From the findings it was discovered that houses

located in close distance to high quality schools sells for higher prices when compared to other houses located further away from the schools.

Dziauddin *et al.* (2013) conducted a study on the influence of Light Rail Transit (LRT) system on residential house prices using the hedonic pricing model. The aim of the study was to examine the influence of Kelana Jaya line on house prices in Klang Valley, Malaysia. The researchers evaluated the influence of house prices on various houses located within the radius of two kilometers from the Kelana Jaya LRT station. Correlation analysis and modified step wise procedures were used to identify the most significant variables for the study. Geographic Information System (GIS) and spatial analysis techniques were all employed in measuring the distance between the LRT station and other amenities from a given house. Finding from the result submitted has indicated positive relationship between the house prices and LRT station. It was also revealed that houses located within close axis to the station, commands higher prices than others that are longer distance from the LRT station.

The study however, fell short in measurement techniques adopted for the study. Local analytical models like Geographically Weighted Regression (GWR), spatial expansion method and multilevel modeling techniques may be more appropriate to effectively estimate local rather and may also allow for the inclusion of local geography of house prices and house characteristics relationship.

Kemiki *et al.* (2014) have also studied the influence of noise and dust level on rental prices of tenement buildings around Lafarge cement factory in Ewekoro town, Nigeria. The aim of the study was to examine the influence of noise and dust from the cement factory on rental prices of residential houses in the area. Rental prices of tenement houses were used as the dependent variable and the independent variables include housing components such as dwellings, location and neighborhood and environmental attributes of tenement houses. Double log functional form of hedonic pricing model was used in analyzing the data collected for the study. Findings from the study as reported in the result shows that noise and dust influences house rental prices negatively. The result also showed that noise and dust are disamenities which reduced house rental prices in the area by about 22 and 1.5% depending on the proximity of a house to the cement factory.

Filippova and Rehm (2011) assessed the influence of proximity to cell phone towers on residential house prices in New Zealand. The aim of the study was to determine whether proximity to cell phone towers have any influence on residential house prices. The traditional hedonic housing price model was used in analyzing the data obtained for the study. Model testing of various proximity specifications across two populations of cell towers including the residential only all towers and the global all towers were done. The result has shown no relationship between cell tower and house prices.

Larsen and Blair (2014) evaluated the price effects of surface street traffic on residential houses in the city of Kittering, South-Western Ohio, USA. The aim of the study was to determine the influence of surface street traffic on the prices of multi-family residential houses with a view of making a comparative analysis on the influence of price effects of surface street traffic on detached houses. Hedonic regression model was used for the analysis.

The result submitted indicates that the influence of street traffic volumes on the prices of the two classes of residential houses is not the same. This implies that the two markets are different. The result further revealed that detached single family houses close to the express ways may be sold at lower prices than similar houses that are further distance away from the express way.

The study failed to take into consideration the influence of dwelling attributes and other attributes of residential neighborhood which may also work in combination to induce the house prices. The use of single explanatory variable to study the influence of residential location and neighborhood characteristics on housing prices may lead to omitted variable bias.

In another direction, Iroham and Oloyede studied the influence of a neighborhood churches on residential house prices in Ota, Ogun state, Nigeria, taking living faith church as a study reference. Sales data of residential houses within the area before and after the situation of the church were gathered. Descriptive analytical technique was used in analyzing the data obtained. The average sales prices of residential houses in the area, before and after the situation of the church were compared. The research revealed that location of a church in a neighborhood may have a great influence on surrounding residential houses. The study however ought to have used inferential statistical tool like hedonic pricing model which is well known to be more effective in analyzing the influence of housing components on house prices. Similarly the use of average house sale prices alone without consideration to other housing characteristics that influences house prices could render the outcome of the findings not to be convincing.

A related study on the influence of religious properties on residential house prices was examined by Babawale and Adewunmi (2011), Hong (2011). The study assessed the influence of neighborhood churches on

residential property prices using selected areas of Lagos Metropolis. The traditional hedonic pricing model was employed in analyzing data for the study. For the detailed examination of the influence of churches on house prices, three churches were sampled. These include the Mountain of fire and Miracle ministry, Onike; Deeper life Bible church, Gada and the Christian Pentecostal mission, Ajao Estate. The 450 set of questionnaires were administered to various heads of households on rental houses across the three locations. Purposive sampling technique was used in selecting the households. The study discovered that the presence of big churches in a residential neighborhood may have a negative influence on house prices. It was however observed that with the presence of very powerful positive externalities around the big churches, the negative influence posed by the presence of big churches in residential neighborhood on house prices may be disregarded.

RESULTS AND DISCUSSION

It is apparent from the various studies reviewed that housing components which comprises residential neighborhood, location and structural characteristics have great influence on house price determination. Neighborhood attributes for example sport and educational facilities are amenities whose presence in a given residential neighborhood could positively influences prices of nearby houses around the neighborhood. Although some researchers opined that availability of sport facilities in a residential neighborhood have little or no relationship at all with house prices thus their presence may have no any significant influence on house prices.

However, submission from most of the studies reviewed on sporting facilities and house prices highlighted the importance of these facilities on nearby houses and thus concluded that they are externalities whose net effect are positive. On educational facilities, availability of Nursery/Primary schools and secondary schools in a residential neighborhood could influence surrounding house prices positively most especially when the schools are standard. It is however observed that most of the studies reviewed on the influence of educational facilities particularly on schools centered more on influence of school quality with little or no emphasis on accessibility to the school itself which obviously might have greater influence on house price formation. Ignoring this important factor may lead to deviation of estimation results.

Findings from the reviewed literature on the influence of light rail transit on housing prices have also highlighted a significant and positive relationship between light rail transit location and the surrounding houses. Houses located closer to the rail transit sells higher than those houses that are located a longer distance away from the LRT stations. On the disamenities aspect of the residential neighborhood influence on housing prices, various studies have shown that residential neighborhood disamenities constitute negatively to prices of houses around them. For instance houses located along or closer to flood prone areas commands lower prices compare to those houses located on free flood areas. Similarly, the influence of noise and dust in a residential neighborhood was also found to have constitutes negative effects on prices of surrounding residential houses. This situation is also applicable to neighborhoods with contaminated environment as the prices of houses are always low due to low demand.

The presence of religious properties particularly neighborhood churches as highlighted in most of the studies reviewed in this study were discovered to have negative influences on house prices most especially the presence of big churches in a residential neighborhood. Some of the studies have however opined that with the presence of very powerful amenities close to the big churches, the negative effects that the presence of big churches constitute in a residential neighborhoods on surrounding houses may be disregarded.

With respect to the influence of residential location on house prices findings from various studies have shown that houses situated in good location and are accessible to places like CBD, place of employment, public transport and other related amenities, goes for higher prices compared to similar houses that are located at disadvantage positions. This has proving that residential location in housing market is very critical in determining housing prices.

Discussions on the influence of dwelling components on residential house prices have shown that the age of dwellings, number of bedrooms, number of other rooms, square footage, number of bathrooms and toilets, house type, size of building and other amenities provided within the dwellings like water, pool, electricity and natural gas have major influence on the formation of housing prices.

It was however discovered that the approaches adopted for selecting sample size in most of the studies examined were not appropriate while some were not clearly defined. This methodological problems associated with some of the studies might lead to the vulnerability of the outcome of the studies.

In the discussions of the influence of residential neighborhood on house prices most of the studies reviewed used few explanatory variables to drive home

their point which may not be convincing enough to justify their result. This study therefore suggests the use of many explanatory variables to adequately evaluate the influence of neighborhood factors on house prices as this could also avoid omitted variable bias.

CONCLUSION

The study has highlighted the influence of housing components in determining housing prices through a critical review of empirical literatures on the impact of housing components and house price determination. From the reviewed literature it may be said that housing components such as dwelling characteristics, location and the attributes of residential neighborhood play major role in guiding an informed valuer as to the amount of money to place on a given residential property either for the purpose of sale or for rent.

Attributes of a residential neighborhood which may either be amenities or disamenities have great bearing on the determination of residential house prices. Evidence from the reviewed literature for instance has shown that attributes of a residential neighborhood influence house prices positively or negatively depending whether is an amenity or disamenities and as such the analysis of these factors cannot be ignored in the process of determining residential house prices.

Findings from the literatures have also indicated that majority of households placed greater emphasis on neighborhood factors in determining the unit of housing to occupy. While some households prefers to live in neighborhood where their investment performance guarantee a higher investment returns, some prefer to live in a residential neighborhood that is adequately secured, noise free and free from environmental contamination. In a nutshell, it is very obvious that there is a relationship between residential neighborhood factors and house price formation. Regarding the influence of residential location and dwellings components on house prices, the two housing components need to be carefully studied and analyzed by estate surveyors and valuers before ascribing value whether sales or rental price of a giving unit of housing.

From the literature, the dwellings components which comprises age of building, number of rooms, toilet, bathroom, size of rooms, constructions materials, architectural design, landscaping, gate and fences among others as well as the location of residential property in terms of accessibility to work place, public transportation, proximity to schools, children play ground, sporting facilities among others contribute greatly in determining residential property prices.

In conclusion, appropriate method of selecting sample size to be adopted for a given study should be clearly defined in order to guide the readers. Aggregate data on neighborhood factors and location attributes should be employed to adequately justify the degree of influence the components have on housing prices formation.

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