



# AN ECONOMIC ANALYSIS OF THE DETERMINANTS OF HOUSE RENT IN ADAMAWA STATE UNIVERSITY AREA

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## ABSTRACT

*This study is on Economic Analysis of the Determinants of House Rent in Adamawa State University Area. It is a common fact that rental houses in the university area is as a result of activities within the school. The study examines the factors that make some people prefer to rent a house in the university area and to identify the factors that lead to variation in house rents between houses around the university area and houses close to the university area. The study employed primary method of data collection where, information was collected through the questionnaire administered to the respondents. Descriptive statistics in form of tables, frequencies and simple percentage were used for the analysis. The data collected were further subjected to OLS regression in order to estimate the relationship between the variables. The result from the study revealed that houses are built for rent around the university area because it attracts higher prices, students rent house in the university area because of security and its proximity to school, as well as availability of infrastructures such as water supply, power supply, etc. Based on these findings, the following policy options were given: government should regulate the rent paid by the tenants in order to avoid exploitation since most of the tenants are students and staff, government should also provide enough land around the university area in a subsidized price in order to make landlords not to charge higher prices, security of lives and properties should be guaranteed, etc.*

**Key words:** House, Rent, University Area, Shelter, Determinants..

## 1.0 INTRODUCTION

### 1.1 Background

Shelter is a basic necessity in life. An individual can satisfy this need by either occupying his own (owner's occupier) property or renting another person's property. In our traditional society, the need for shelter is mainly met through the first alternatives, that is owner occupation. With the emergence of urban centers, the situation has changed, many people are no longer been able to own houses because of the difficulty in the acquisition of land and the high cost of building construction. Therefore, they are left with the alternative of renting other peoples' properties in order to satisfy their need for shelter. Consequently, two classes of urban residents have emerged, the landlord and the tenant. Under this arrangement, the tenant pays to the landlord a certain amount of money in consideration for the use of the landlord's house. This amount is popularly known as rent.

During the civil war in Nigeria, places were destroyed. Consequently, there was a sharp decline in the supply of landed properties after the war. Furthermore, the past civil war period witnessed an unprecedented number of the rural population trooping into the urban centers due to the conspicuous property brought about in the urban area by the oil boom. This resulted to high demand for the existing limited supply of landed properties (Selim, 2008). This trend has continued with the effect that "the average worker is paying 30% to 40% of his salary as rent" (Keivani R, and Werna E, 2001). Thus, the increase in rents on the properties has led to the variation of rent on properties.

Housing includes both the physical building as well as the totality of the environment and the neighborhood, amenities within which the building situates (Eke, 2004). Housing is a major and important component in the social and economic sectors of Nigeria as a nation. Residential housing plays different roles in the society. Benjamin (2007) sees housing as an immense element in the inheritance and a

source of personal wealth. It is also a major sector in the national economy, a substantial consumer of investment funds and large source of employment within construction (Butter R. V, 1982).

The demand for housing is just the manifestation of the demand for living in a location (Selim, 2008). Most people want to live in or near the cities where they work and this desire is increasing over time.

### 1.2 Statement of the Problem

The issue of housing has become a veritable source of concern not only to individuals, but also to the government, because it is one of the most basic of human needs (Akeju, 2007; Ademiluyi and Raji, 2008; Onibokun, 1986; Salau, 1990). This has led to various efforts being taken by stakeholders at addressing the seeming intractable situation; for instance, in the form of private-government and public - private partnership initiatives. The daily migration from rural to urban cities, together with increase population has rather aggravated the phenomenon, thus contributing to growing housing needs (Nubi, 2000). In most of the urban cities, there are problems of slum or overcrowded area, unsanitary living conditions, emergence of squatter settlement and inadequate dwellings amongst others (Olotuah, 2006; Nubi, 2000). The situation has consequently made many urban residents struggled to get accommodation which consequently has led to increasing high rent for the available housing facilities or apartments (Olateju, 1990). Ademiluyi and Raji (2008) observed that despite the fact that there is excess demand of housing either as owner or for rent by household in Nigeria, their purchasing power is limited by their respective income. In other words, majority of the people that are living in urban cities found themselves in dehumanizing housing environment, while those that have access to average housing do so at abnormal cost. Onibokun (1986) corroborated this situation by arguing that rent in major cities of Nigeria is about 60% of an average worker's disposable income. It is therefore evident that there will be little left as saving for most of the workers considering the

substantial part of their income that goes for rent payments and other household expenditures. The increasing cost of building new houses, also affected greater proportion of people who would have desired to have their own house. Hence, building of new houses is not within the reach of many people and therefore, the resolve to renting houses becomes the inevitable option (Nubi, 2000).

### 1.3 Objectives of the Study

The main objective of this study is to analyze the determinants of house rents in Adamawa State University environment. The specific objectives include to:

- i. Examine factors that influenced building of houses for rent in the University area.
- ii. Identify the factors that lead to variation in house rents between houses around the University area and houses outside the University area in Mubi.
- iii. Examine factors that significantly influence decision to rent a house rather than build.

### 1.4 Research Questions

Based on the objectives above, the following questions were formulated:

- i. What are the factors that influenced building of houses for rent around the university area.
- ii. what are the factors responsible for the variation in house rents between houses around the University area and houses outside the University area in Mubi.
- iii. Why do some people prefer to rent a house rather than build a house around the university area in Mubi?

## 2.0 LITERATURE REVIEW

### 2.1 Conceptual Clarification

According to Field (1987) as cited in (Selim, 2008), the word “rent” was derived from the Latin word “redditus” which means any income or yield from an economic agent. However, it

has been given several definitions depending on the shades of opinions. For instance, the lawyer sees rent as “a certain and periodic payment or service made or rendered by the tenant of a corporeal hereditament (Hemingway, 1974 in Can, 1990), or more precisely in present day usage” a sum of money paid for the occupation of land.

On the other hand, economists see rent from a different perspective. For instance, Ricardo (1971) as cited in Butter (1982), sees rent as that portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of soil. According to Marshal (1964) as cited in Mees and Wallace (1994), rent is the income derived from the portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible power of the soil.

### 2.2 Review of Empirical Studies/literature

There are diverse of studies with varieties of outcomes in the literatures concerning the subject under consideration. For instance, Gbadeyan and Aremu (2011) examined the determinants of rent option in Nigerian housing market. Primary method of data collection was applied, where information was collected from the sample of 350 respondents using questionnaires. Multiple regression analysis was used to analyse the data obtained from the study. The study revealed that eleven out of seventeen factors amongst which include quality of life, availability of accommodation and location of residence are the important factors identified in the study. The study recommends for both public and private partnership in housing development, efficient provision of credit facilities, and the use of local materials for construction. In this line, Orekan(2015), assesses the impact of infrastructural facilities on residential property growth in Ota, Ogun State with a view to having a deeper knowledge of residential property development growth in the study area. Questionnaires were distributed to registered



estate surveying and valuation firms in Ogun State as well as 89 randomly selected clients of the estate surveying and valuation firms' management portfolio in the study area with a 74% retrieval rate. Data gathered were analyzed using frequency distribution tables and component bar charts. The study showed that the provisions of infrastructure like industries, educational institutions and roads were major contributors to property growth in the study area. The study recommends that the State government needs to monitor the proper maintenance of the provided facilities and invest more on infrastructure in the years ahead.

In a study by Ruivo (2010), where he studied the determinants of rental rates in major cities in the United States, revealed that there is a positive relationship between rental rates and income. This further implies that higher incomes are associated with higher rental rates. The study further revealed the existence of a positive relationship between housing costs and population densities which relate to increasing rates. Poverty rates also played a great role in the rental market with increasing percentages equaling increasing rates. Cities with a higher number of units available in the market experience lower rental rates on average, proving basic economic theories of supply and demand. This is also true with housing size. The study concluded that further evidence is needed to ascertain true determinants of rental rates.

Frunz (2007) studied office rent determinants. His study applied hedonic panel analysis and found out that office rent is determined by vacancy levels, rentable building area; such that average floor area played a significant role in determining office rents, building age shows up significantly in a host of studies on offices market rent determinants. Godman (2004) investigated determinants of operating cost of

multi-family rental housing where he found that housing quality as a strong driver of operating costs; older properties must incur more expense to achieve a level of housing quality; economies of scale in property operations are significant but top out at round 200 apartments; and a property's operating expense/rent ration is influenced by local area input costs and short run apartment market fluctuations.

Sirmans and Benjamin (1991) studied determinants of market rent and revealed that there are some factors that are responsible for apartment rent; these factors include physical attributes to vacancy rates. Firstly, age, amenities, services and physical attributes, location factors such as proximity to an economic focal point or college campus and characteristics of rentals and their willingness to pay have several significant effects on rents. Secondly, they found out that variables like rental concessions, property management and length of residency have effects on apartment rent.

Klyuer (2008) studied the evolution of equilibrium real home prices in the United States and found that despite recent declines, single-family homes remained eight to twenty percent (8%-20%) overvalued as of the first quarter of 2008. Also, the study revealed that inventory-to-sale-ratio to be the most important driver of changes in property values in the short-run while analyzing house prices. The findings also included the bloated inventory-to-sales-ratio, high foreclosures rates, and the large degree of inertia in housing markets imply that recent price declines are likely to continue. Moreover, with the gap between actual and equilibrium home prices playing only a weak anchoring role, the downward momentum could well take home prices considerably below equilibrium.

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Abraham and Hendershott (1992) investigated the substantial movements in real house prices in the United States in the period of 1977-1991. They found out that house prices are determined by employment and real income growth, real construction costs and after-tax financing cost. They posited that empirically, all variables work as expected, with comfortably high-ratios. The main driving forces are the growth variables. However, the variables are able to explain only about two-fifths of real price changes. The explanatory power rises to above one-half when lagged appreciation rate is added as an explanatory variable and to three-fifths with inclusion of time period in the variables.

Butter (1982) estimates a hedonic price function using a semi-parametric regression and compares the price prediction performance with conventional parametric models. Data from geographic information systems (GIS) are incorporated to account for locational attributes of the houses. Mees and Wallace (1997) illustrated how the technique of smoothing splines can be used to estimate hedonic housing price models. Their illustration takes the form of a rather limited but very promising, application with Hong Kong data.

Tse (2002) identified the spatial pattern of housing price changes and their determinants in Seoul and its neighboring new towns. The results of a cluster analysis show that the spatial

pattern of housing price change rates is not correlated with housing prices. Ivy and Ernest (2013) modelled a hedonic price function for housing as an additive nonparametric regression. Estimation is done via a back fitting for housing procedure in combination with a local polynomial estimator. They compare their results to alternative parametric models and found evidence of the superiority of our nonparametric model. Sikiru and Luqman (2013) examined the economic analysis of determinants of House rent in the University environment, they applied hedonic pricing model which captures multi-dimensional characteristics of houses in the sample. Findings revealed that variables like age, life span of house, tenement rate charges by the local government and number of houses built in the university environment are the key determinants of house rent.

### 2.3 Theoretical Frame-work

This study is based on hedonic model of house prices (rents). Rosen (1974) brought out a theoretical application of the hedonic price model to the residential housing market. According to Sikiru, Abdulrazaqand Lugman (2013), several authors such as Butter (1982); Margo (1996); Meese & Wallace (1997); Kiel & Zabel (2007), have adopted this technique to construct house price indices and to determine the factors responsible for property prices.

According to this theory, property can be viewed as multi-functionally related characteristics without observable prices because they are not traded in open markets. Nonetheless, the number of housing characteristics can be large and vary from house to house. In contrast, they are usually placed into categories such as structural characteristics and neighborhood characteristics (Palmquist, 1980; Can, 1990 in Sikiru, Abdulrazaq and Lugman, 2013). They referred to structural characteristics as number

of rooms, square feet of living space, basement, garage and style of house, while neighborhood characteristics are termed to be accessibility to employment areas, schools, parks and the quality of environment.

For the impact of a property's characteristics for its value to be captured, traditional approach dictates regressing property values on an OLS equation with its various characteristics. Therefore, the derived coefficients in the equation are estimations of the hedonic prices of the characteristics at the market clearing level, and the marginal contribution of each characteristic (Can, 1990). The approach makes it possible to differentiate changes in house prices from changes in property quality by providing quality-adjusted prices indexes, and to investigate the main factors that determines the value of properties within the areas covered.

Despite the fact that hedonic price model is widely used, several authors have their reservations concerning the traditional method for what they call its shortcomings. These issues were empirical in nature and included questions relating to the choice of housing characteristics to be adopted, the correct method to be used therefore is the functional form of the hedonic equations which assumes the existence of spatial dependence in the sample selection and specification issues (Can, 1990; Tse, 2002).

Consequently, many studies have attempted to resolve these issues leading to wider variation in the methodology employed using the hedonic price theory. Traditionally, the hedonic price function has assumed that the structural characteristics of houses are constant in their functional relationships across different neighborhoods. Those location characteristics are treated independently of housing characteristics, which imply the same marginal contribution despite a change in geographical

location. The assumption of no spatial variability in the price model, does not recognize the important differences in value consumers place on the same attribute which can lead to over-estimation or under-estimation of that attributes implicit price. That is, an attribute in high demand in one geographical space would not have the same marginal contribution to house value in another location with significantly less demand for the same attribute (Can, 1990). With demand-supply approach we can explain differential rents arising on different kinds of lands between which there are differences of fertility and location. When there are differences in land, each kind of land would have its own separate demand and supply and consequently different rents will be determined.

This theory is relevant to this study because the location of house is the most determinant of its rent. The demand level of house around the University environment makes its supply limited and push the rental prices higher, but these high rents also vary differently based on the level of proximity to the University and other places (commercial areas, market, banks etc), types of house, styles of buildings, quality of building, age of buildings, types of toilet etc. The closer the house to the University, the higher the demand and consequently the higher the rent. Supply of houses around the university environment is always very limited due to the high rate of its demand and this demand for houses close to the university arises due to, especially location (proximity) to the university.

### 3.0 METHODOLOGY

The population of this research work covers all residential houses in Adamawa State University area. These residential houses however, were restricted to the ones built for rental purposes only. The population were categorized into three groups; the first category are the houses occupied by staff of Adamawa

State University, the second category are those houses occupied by students of Adamawa State University and the last category are the houses occupied by others (neither staff nor students of Adamawa State University). The first category has the total of 186, the second has 272 and the last has the total of 192. This gives the total population of 650.

In choosing the sample size, the study applied Taro Yamane's formula which is used in determining sample size in many studies and widely considered reliable. The Taro Yamane's formula is given as follows:

$$n = N / (1 + N(\alpha^2))$$

Where:

n = Sample size

N = Total population size (known or estimated)

$\alpha$  = Precision level (0.05)

The population of this study as stated and explained earlier is 650. The above formula is applied to determine the sample size as follows:

$$n = 650 / [1 + N(\alpha^2)]$$

$$n = 650 / [1 + 650(0.05^2)]$$

$$n = 650 / [1 + 650(0.0025)]$$

$$n = 650 / [1 + 1.6]$$

$$n = 650 / 2.6$$

$$n = 250$$

The data used for this study were collected basically from primary source, using questionnaire as the instrument for data collection. The questionnaires were randomly distributed to the sampled respondents. The respondents in this study were students and staff of Adamawa State University, as well as others who live in rental houses around the University area. Two-hundred and fifty (250) questionnaires were distributed to the respondents in order to get their opinions concerning the subject matter, where two-hundred and thirty-six questionnaires were retrieved and used for this study.

This study used descriptive statistical

techniques such as tables, frequencies and simple percentages to analyse the data collected. The information was further subjected to linear probability model and logit as well as Ordinary Least Square (OLS) in order to analyze the determinants of house rents in Adamawa State University area.

Using descriptive analysis, linear probability model and logit model equations, we specified the functional relationship of the variables as follows:

$$HR = F(ABL, AVW, AVP, TOT)$$

The Linear relationship is specified as follows:

$$HR = \beta_0 + \beta_1 ABL + \beta_2 AVW + \beta_3 AVP + \beta_4 TOT$$

Where:

HR = House Rent

ABL = age of the building

AVW = availability of water

AVP = availability of power supply in the house

TOT = toilet availability in the house

$\beta_0$  = Constant

$\beta_1, \beta_2, \beta_3$  and  $\beta_4$  parameters,

$\mu_i$  = Error term

**Age of the Building:** this applies to the number of years the building has spent. There are some houses that were built long time ago and lack some modern facilities, while there are others that are newly built. It is believed that this is taken into consideration by both the land lords and the tenants in fixing and paying rent respectively.

**Availability of Water:**

Water is one of the essential needs of man and therefore is being taken into consideration when renting a house. Some houses have water either close by or within, while others do not. In fixing and renting a house, availability of water is one of the important factors considered by the land lord and the tenants.

**Availability of Power Supply:**

This implies the presence of electricity or any other source of power such as solar, etc. Some

houses have power supply, while others do not. This has become a necessary determinant of house rent.

#### **Toilet Facilities:**

There are different types of toilet facilities available in a house. Some have pit toilets, others modern toilet facilities and yet others do not even have at all thereby relying on open defecation. This, no doubt factors in renting a house.

#### **Dummy**

AVW=

Water supply represented by dummy variable.

Dummy: 1 If there is water supply  
0 if otherwise.

AVP = Power Supply represented by dummy variable.

Dummy: 1 if there is power supply  
0 if otherwise.

TOT = Availability of Toilet represented by dummy variable.

Dummy: 1 if the toilet is private  
0 if otherwise (public)

**Apriori expectation/ Assumption of the model**  $\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0$

## **4.1 RESULTS AND DISCUSSION**

### **4.1 Descriptive Analysis**

Based on the results of the descriptive analysis, the variable House Rent (HR) around the school environs has a mean of N47,110. It has a maximum of N200,000 and a minimum of N19,000. Thus, a house could not be rented by any value less than N19,000 and perhaps more than N200,000. The variable has a standard deviation of 0.49. The probability of the Jargue-Bera statistics of the variable being (0.00) suggests that the observations are normally distributed at 5% level of significance.

The variable Age of Building (ABL) has a mean of 12.53. The maximum Age of Building

around the school environs is 32 years. The minimum however, is 2 years, due to the inability of investors to invest in new building around the school owing to the insurgency in 2014. The variable has a standard deviation of 7.15. The probability of its Jargue-Bera statistics (0.01) suggests that the observations follow the normal distribution curve at 5% level of significance.

The variable Availability of Power (AVP) is a qualitative variable. It has a mean of 0.77, suggesting that about 77% of the houses have power. The variable has a maximum of 1.00 and a minimum of 0.00 as well as a standard deviation of 0.41. The probability of its Jargue-Bera statistics (0.00) suggests that the observations are normally distributed at 5% level of significance.

The variable Availability of Water (AVW) has a mean value of 0.61, suggesting that about 61% of the accommodations around the school environments have water sources. A maximum of 1.00 and a minimum of 0.00 was also recorded for this variable. The variable is normally distributed as suggested by the probability of its Jargue-Bera statistics (0.00) and the observations are not clustered around the mean as the standard deviation (0.48) suggested.

The variable Type of Toilets (TOT) has a mean value of 0.41, suggesting that about 41% of the accommodation in the school environs have good toilets (water system) while the remaining 59% have poor toilets (pits), for several tenants. The variable has a maximum value of 1.00 and a minimum of 0.00. The probability of its Jargue-Bera statistics (0.00) suggests that the variable is normally distributed.

### **4.2 Correlation Matrix**

The variable Age of Building (ABL) and Availability of Power have a weak negative

correlation (-0.24). There is also a weak negative correlation between Age of Building (ABL) and Availability of Water (AVW). There is, however, a negative moderate correlation (-0.52) between Age of Building (ABL) and House Rent (HR). Similarly, a moderate negative correlation (-0.52) between Age of Building (ABL) and Type of Toilets (TOT).

There is a very weak correlation (-0.05) between Availability of Power (AVP) and Availability of Water (AVW). There is a weak positive correlation (0.20) between Availability of Power (AVP) and House Rent (HR). There is similarly a very weak positive correlation between Types of Toilet (TOT) and Availability of Power (AVP).

There is a weak positive correlation (0.40) between Availability of Water (AVW) and House Rent (HR). Similarly, there is also a weak positive correlation between Availability of Water (AVW) and Type of Toilet (TOT). However, there is a strong positive correlation (0.62) between House Rent (HR) and Type of Toilet (TOT).

**4.3 OLS Regression**

$$HR = 36152.72 - 893.84ABL + 8509.82AVP + 7602.96AVW + 26280.24TOT$$

$$(Se) = (8797.21) (360.50) (5271.64) (4968.61) (5352.32)$$

$$t^* = 4.10^* -2.47^* 1.61^* 1.53^* 4.91^*$$

$$R^2 = 0.46$$

$$D.W = 1.70$$

Based on the results of the OLS regression, the Age of Building (ABL) has a negative impact on House Rent. However, other variables in the model such as Availability of Water (AVW), Availability of Power (AVP) and Type of Toilet (TOT) have positive impacts on the dependent variable House Rent (HR).

The coefficient of Age of Building (ABL) (-893.84) suggests that when building ages by one more year, its House Rent decreases by about

893 naira. The standard error and t-statistics as well as probability suggests this variable is statistically significant in influencing house rent around the university environment at 5% level of significance.

The coefficient of Availability of Power (AVP) being 8509.82 suggests that if Availability of Power increases by 1 percent, house rent increases by about 8509.82 Naira. This variable is statistically significant in influencing House Rent (HR) at 10% level of significance.

The coefficient of Availability of Water (AVW) being 7602.96 suggests that when Availability of Water increases by 1 percent point, House Rent increases by about 7602.96 Naira. However, this variable is not statistically significant in influencing house rent at 5% and 10% levels of significance.

The coefficient of Type of Toilet (TOT) being 26280.24 suggests that the type of Toilet improve by 1 percent, here, being 1 instead of zero, since the variable is a dummy, House Rent (HR) will increase by 26,280.24 naira. This variable is also statistically significant in influencing House Rent (HR) as suggested by the standard errors and t-statistics at 5% level of significance.

The R<sup>2</sup> of the model, being 0.46 suggests that about 46% of the variations in house rent (HR) is explained by the variables captured in the model. While the remaining 54% maybe due to other factors outside the variables in the model.

The Durbin-Watson (DW) statistics of the model being 1.70 suggests that there is very slight serial correlation among the explanatory variables in the model.

## 5.0 CONCLUSION AND RECOMMENDATIONS

### 5.1 Conclusion

This study examined the factors that determines (attracts) the rental of houses around the Adamawa State University environment, Mubi. The study employed the OLS Multiple regression methodology in analyzing the factors determining house rents around the University environment. The result shows that the Age of Building (ABL) has a negative impact on house rent, Availability of Water (AVW), Availability of Power (AVP) and Type of Toilet (TOT) have positive impacts on the dependent variable House Rent (HR).

The Age of Building (ABL) according to this finding is statistically significant in influencing house rent around the university environs. The Availability of Power (AOP) is also statistically significant in influencing House Rent around the University environs. Both the Availability of Water (AVW) and Type of Toilet (TOT) are also statistically significant in influencing the house rents around the University environment. However, the significance nature of all the determinants of rental houses around the university environs implies the magnitude of House Rents in places far away from the university. The issue of the constant presence of security personnel around the university area has added to the high demand and supply of houses for rent in that area.

### 5.2 Recommendations

Base on the findings of this study, the following points have been recommended:

- i. Since most students and staff prefer to rent a house around the university area due to the proximity together with the availability of certain facilities as captured in the model, the government in collaboration with the university management should regulate the rent on houses in order to avoid exploitation by the landlords.
- ii. Anybody or agency interested in building houses for rent around the university area should try and provide facilities such as electric power supply, good toilet, water supply, etc. This is because this study has provided evidence that most of these factors determine the house rent and attract tenants.
- iii. Government should make land available at a subsidized rate around the University area and also make such infrastructures like power and water available in order to bring down the prices (rent) of houses when such infrastructures are provided by the private individuals.
- iv. The activities of the various security around the university area should be sustained.

## REFERENCES

- Ademiluyi, I. A. (2010). Public Housing Delivery Strategies in Nigeria: A Historical Perspective of Policies and Programmes. *Journal of Sustainable Development in Africa*. Vol. 12, No. 6. Pp. 153-166.
- Akeju, A. A. (2007). Challenges to Providing Affordable Housing in Nigeria. *A Paper Presented at 2<sup>nd</sup> Emerging Urban Africa International Conference on Housing Finance in Nigeria*, Shehu Yar'adua Center, Abuja, October 17<sup>th</sup>-19<sup>th</sup>.
- Benjamin, C (2007), The Case for Rentals. *The Statesman*, January 25<sup>th</sup>, 2007.
- Butter, R. V. (1982). The Specification of Hedonic Indexes for Urban Housing. *Journal of Land Economics* Vol. 58:96-108
- Can, A. (1990). The Measurement of Neighborhood Dynamics in Urban House Prices. *Journal of Economic Geography* 66:254-272.
- Fan, G.; Org, S. E. & Koh, H. C. (2006). Determinants of House Price; A Decision Tree Approach. *A Journal of Urban Studies* Vol. 43: 2301-2315.
- Frunz, F. (2007). Office Rent Determinants: A Hedonic Panel Analysis. *Munich Personal RePEc Archive*. Retrieved from [http://mpra.ub.uni-milenchen.de/11445/MPRA Paper No. 11445](http://mpra.ub.uni-milenchen.de/11445/MPRA_Paper_No._11445), posted 07 November, 2008/00:10.
- Gbadeyam, R. A. and Aremu, M. A. (2011). Determinants of Rent Option in Nigerian Housing Market. *International Journal Management and Administrative Science*, Vol. 1, No. 11, Pp. 1-9.
- Godman, J. (2004). Determinants of Operating Cost of Multi-Family Rental Housing. Joint Center for Housing Studies Harvard University.
- Keivani, R and Werna E (2001), Modes of Housing Provision in Developing Countries, *Progress in Planning*, Vol. 55: 65-118.
- Ivy, D and Ernest, A. (2013), Factors Determining Residential Rental Prices. *Asian Economic and Financial Review*, Vol. 3, No. 1: 39-50.
- Klyuer, V. (2008). What goes up must come down? House Price Dynamics in the United States. *IMF Working Paper*. WP/08/187. Pp.1-23.
- Meese, R. A. & Wallace, N. E. (1997). The Construction of Residential Housing Price Indices: A Comparison of Repeat Sales, Hedonic-Regression, and Hybrid Approaches. *Journal of Real Estate Finance and Economics* 14:51-73.
- Nubi, T. O. (2000). *Housing Finance in Nigeria-Need for Re-engineering*. Retrieved from <http://www.housingfiance.org/pdfstorage/africa>. February, 2017.
- Onibokun, P. (1986). *Urban Housing in Nigeria*. National Institute of Social and Economic Research, Ibadan, Nigeria.
- Olotuah, A. O. (2006). *Cooperative Housing Development in Nigeria*. In online

- Proceedings of Gulf First Urban Planning and Development Conference and Exhibition, "current issues in urban planning". 20-22, February, Kuwait City, Kuwait.*
- Orekan, A. A. (2015). *The Impact of Infrastructural Facilities on Residential Property Development in Ota, Ogun State, Nigeria. Covenant Journal of Research in the Build Environment. Vol. 3, No. 2.*
- Rosen (1974). *Hedonic Prices and Implicit Markets: Differentiation in Pure Competition. Journal of Political Economic, 82. 34-55.*
- Ruivo, R. (2010). Determinants of Rental Rates in Major Cities in the United States. *Bryand Economic Research, 3 (7), 1-16.*
- Salau, A. T. (1990). The Environmental Context of Urban Housing, Public Service and Infrastructural Facilities in Nigerian Urban Centers. *In Onibokun, P. (ed). Urban Housing in Nigeria. Ibadan, NISER, 58-88.*
- Selim, H. (2008). Determinants of House Prices in Turkey: Hedonic Regression Model, *Dogus University, Vol. 9, No. 1; 65-76.*
- Sikiru, J. B. Abdulrazaq, I. U. and Luqman A. S. (2015), An Economic Analysis of Determinants of House Rent in the University Environment. *European Scientific Journal, Vol. 9, No. 19:99:111.*
- Sirmans, G.S., & Benjamin, J.D. (1991). Determinants of Market Rent. *The Journal of Real Estate Research, 6 (3), 357-379.*
- Tse, R. Y.C. (2002). Estimating Neighborhood Effect on House Prices: Towards a new Hedonic Model Approach. *Journal of Urban Studies Vol. 39:1165.*