

Evaluation of the Effect of Distance to Central Business District (CBD) to Resident House Rent Pattern in Port Harcourt

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Abstract

This paper explores the effect of distance to central business district on rental pattern of houses in Port Harcourt. Its objectives include computing the range of house rent in the study area; examining the effects of distance to central business district on house rent and the applicability of Alonso's (1964) bid-rent theory about land value in Port Harcourt metropolis. It also tests the hypothesis that there is no significant difference in rent with distance from the central business district. In picking the sample systematic random sampling technique was applied. Although 44.4 percent representing 20 of the total sampling size were picked. The simple regression statistical method was adopted to analyze the data "from the study the range of house rent is N120, 000. The regression result shows that there is positive but little relationship between house rent and distance to CBD. However, the empirical result of the findings on whether rent does not decrease with distance from the CBD indicates that the rise 0.486. $r^2 = 0.23620$ and the coefficient of determination is = 23.04%. The result of the hypothesis revealed that the correlation coefficient of house rent is 0.486 and the r^2 is 0.23620 while the coefficient of determination is 23.04. Thus the null hypothesis is rejected implying that house rent does not decrease with distance from CBD. The empirical result therefore showed that Alonso's (1964) bid-rent theory of residential location is not application in Port Harcourt's situation. As a result of the findings of the study, the researcher suggests that government should encourage property development at different areas.

Keywords: Distance, CBD, Housing, Bid rent

Introduction

In the last five decades, Nigeria cities have been experiencing very rapid urbanization (Oluwasola, 2007). This is largely due to very rapid urban growth associated with natural population growth and rural-urban migration driven by rapid socio-economic changes and development. Sadly, this growth has not been matched with simultaneous provision of adequate services infrastructure and resource development. Thus, the significant rise in population number and size Of Nigerian cities have led to the acute shortage and poor quality of available housing units for dwellers, resulting in overcrowding high rents, poor urban living conditions, low infrastructure services, deteriorating environment, increasing poverty and rise in urban insecurity (Agunbiade 1983) Ajanlekoko 2001, Owei 2007).

However, the importance of housing to man cannot be over emphasized. Housing is one of the three basic needs of mankind and it is the most important for physical survival of man after food. A deficiency in housing can profoundly affect the health, welfare and productivity of man. It is an indispensable necessity without which man's survival is impossible. Beyond the fabric, services and the contents of the dwelling, housing encompasses the entire surrounding of the dwelling to stimulate healthy living. House rent on the other hand is the money a tenant pays for using a house. Housing has to be adequately quantitatively and qualitatively in order to fulfill its basic purposes (Barlowe, 1978). Hence, it is the objective of this study to carefully evaluate the effect of distance to central business district to the pattern of residential house rent with a view to understanding rental situation in the study area. Importantly the paper hopes to achieve the range of house rent in the study area, to compute the effect of distance to the central business district to house rent and to examine the applicability of Alonso's (1964) bid-rent theory about land value in Port Harcourt metropolis.

Conceptual Clarification and Literature Survey

The studies conducted o residential house rent in cities are based on different ideas, such as the classical, the neoclassical and the political economy approaches (f(briassoulis, 2000). The common point of departure for a significant part of the analytical models regarding the spatial distribution of house rent is the Ricardo Von Thunen Model. The alternative approaches have been developed in this regard. The most emphasized and the most commonly used of these approaches is the "Neo Urban Economy" and is based on the neo-classical economy. Alonso Mills and Muth were the pioneers of this school. The first is the theory developed by Alonso (1964) and Muth (1969) which is based on the spatial distribution of land and housing values, the density of land use, household income levels and the cost of access to central business districts (CBD). The second approach is the one developed by Harvey (1974, 1982) which was based on political economy. The pioneers of this approach argued that the location models that were based on perfect competition would not yield the expected optimum results; on the contrary, they would cause inequality and instability (Shephard and Barnes, 1990). The third and the last approach was developed by Scott (1989). According to this approach, metropolitan growth is regarded as

the dynamics of the production system (Hough, 1990)

The Bid Rent Theory

The principle of Bid Rent Functions was established by Hunt (1903) and has been confirmed by later works Ratcliffe 1949, Alonso 1964 among others. Though later used in the context of urban analysis, the bid rent theory was first developed in an agricultural context. One of the first theoreticians of bid rent effects was probably David Ricardo, according to him the rent on the most productive land is based on its advantage over the least productive, the competition among farmers insuring that the full advantage goes to the landlords in the form of rent.

The bid rent theory is a geographical economic theory that refers to how the price and demand for real estate changes as the distance from the Central Business District (CBD) increases. It states that different land users will compete with one another for land close to the city centre this is based upon the idea that retail establishments wish to maximize their profitability, so they are much more willing to pay more money for land close to the CBD and less for land further away from the area. The bid rent theory as explained by Alonso (1964) assumes that household locating near the CBD is willing to pay more for centrally located parcels of land because of high accessibility.

However, in Nigeria all cities apart from Abuja are organic in their origin and developed over a long period of time as build-on for existing pre-colonial urban centres (Aderamo and Ayobolu, 2010). Empirical evidence in most cities of the world has confirmed that none of the theories of urban structure can singly serve as a tool in understanding contemporary urban land use development and structure. Each city has unique history, structure and processes of changed pattern (Nagot, Register and Thomas 2009).

Residential Rent Determinants

The analysis of residential house rent revolves around two central and interrelated questions “what drives/cause land use change?” (Syagga 1994). Economically, as with any other good or service, house rent is determined by the interaction of many variables whether overtly in a relatively free market or covertly as latent value in a controlled society. In the early 1980s property prices in real estate are determined at the point of equilibrium where demand for land intersects supply of land. That is to say the value of property depends on its level of demand and supply conditions in the market. Given the fixity of supply of land, its increase in the quality in the short run in response to increase in demand becomes difficult. Quality supplied can only be increased by unit area. In response to increase in demand for agricultural land or other uses, “vendors accordingly are letting properties to reflect this fact which means sales of complete farm as one lot are becoming rare, particularly where larger acreages are involved and as a result properties for sale are being divided into small lots. (Coster,2003). It must however be realized that as land is subdivided to meet increased demand at increased prices, there comes a time that further subdivision commands no further increase in value and may even assume a declining value and the provision of services. The per-ultimate and the last factors according to him include factors integral to the property including physical, economic and legal factors, and national and local economic conditions. To Tuladhar (2002) land value factors can be broad classified under four main factors as follows: social factors, economic factors, legal, government, political factors and physical environmental locational factors.

Port Harcourt was largely a monocentric city with most of its functions and activities central in the center area. Within this monocentric urban form, house rent was very much dependent upon the location relative to the central business district. Lately, urban sub centers with functions similar to the central business district have emerged and continue to grow. Employment levels have decreased in the central business district (CBD) due to downsizing and rationalization programmes while emerging sub-centers offer more employment opportunities and access to easy shopping, opportunities by households (Owei, 2007) hence, the prevalent pattern of spatial organization of commercial service activity within the city has developed to be polycentric. Such a pattern is evidenced in the spatial concentration of business and employment within not only the central business district but also in the secondary centers.

From the literature on research on house rent it is certainly true that rent has risen but whether this also represents an increase in real terms, allowing for the effect of inflation is not always made clear. Again, despite the presence of urban subcentres and the theoretical assumptions about their influence, many of the existing studies still view the CBD as the sole place for commercial activities. As such, these studies only provide test for the existence of CBD controlled land value gradient, thereby ignoring the potential role other factors play in a polycentric city (Herbert, 1982). From all these studies, it has become clear that there is a need for better understanding of the effect of distance to central business districts to residential house rent patterns in developing cities. A better understanding of the effect of distance to central business district to residential rent pattern in the city, will no doubt, be beneficial to prospective tenants, investors and policy makers in their decision making processes. In the light of the foregoing this paper attempts to examine the applicability of

Alonso's bid rent theory to Pot Harcourt.

Research Method

This paper relied on secondary data, a list of house owners was collected from registered estate surveyors and values based in Port Harcourt. Goggle map and the image of Rivers State geographic information system were used in isolating the location and identifying the total number of houses. A total of 20 locations were picked using systematic random sampling representing 44.4 percent of the 45 layouts in Port Harcourt. Systematic random sampling was used so as to reduce bias. Besides it was convenient for the study. The distance of these locations in relation to the city centre was calculated in the GIS environment. Simple regression was utilized in analyzing the data for the fact that it measures relationship.

Research Findings

Table1: Rent and Distances to OBD

No.	location	Distance to OBD(metres)	Rent per on BED room flat/annum in thousands.
1	Abulaoma	2768.67	75
2	GRA Phase 1	5572.20	350
3	Rumuokoro	10265.237	250
4	Trans Amadi	6480.237	180
5	Trans Amadi	3388.080	350
6	Rumuigbo	8726.58	220
7	Diobo	2257.15	100
8	Rumuokwuta	7816.15	190
9	rumuolumeni	9178.72	170
10	Agip Estate	6386.47	230
11	Rumuobiakanni	8910.67	280
12	Rumuokrushi	9387.50	250
13	D/line	3253.82	200
14	Eagle Island	8017.76	210
15	Aggrey Road	1357.42	120
16	Borokiri	2065.676	110
17	Waterlines	4925.781	200
18	Elekahia	5026.827	180
19	Creek Road	1778.386	115
20	Eliagbam	6245.72	270

Data Source: Researchers' field work (2011)

The table above depicts the end pattern of twenty locations within the study area. The table also shows rent in relation to distance to OBD. From the table the highest rent is N350, 000 and is paid in GRA Phase I and Trans Amadi with 5572.67m and 3388:080 distances respectively away from the OBD while Aboluma attracts the least of N75, 000 and is 2768.67m away from the OBD.

Table2: Model Summary

Dependent Variable	r	standard error of the estimate	N
DC	0.486	2585.96364	20

$Y = a + bx + e$

Substituting the value we have

$$Y = 1997.659 + 0.18x + 0.08$$

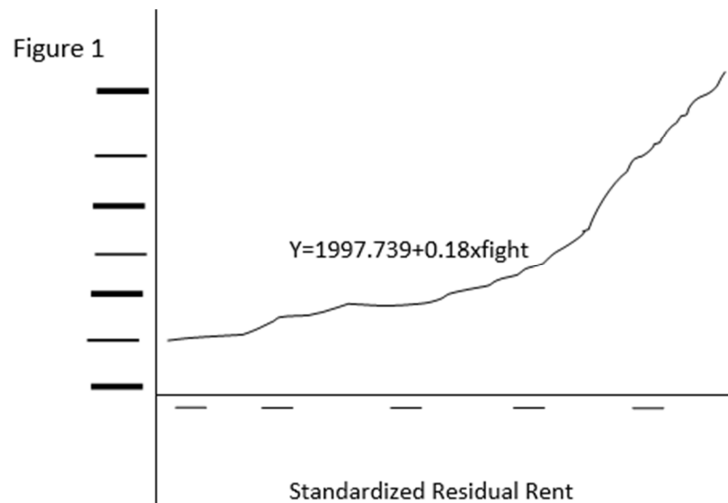
$$\text{Therefore } Y = 1997.739 + 0.18x$$

$$r = 0.486$$

$$r^2 = 0.23620$$

Coefficient of determination 23.04%

From the regression analysis the correlation coefficient derived is 0.0486. The null hypothesis is therefore accepted, implying that rent does not decrease with distance from the OBD, it can be suggested therefore that nearness to OBD does not mean high rent.



The graph above shows the relationship between rent and distance to OBD. Still from the figure above it can be seen that the effect of distance to OBD on rent is positive but not significant. The curve indicates that nearness to OBD is not the only determinant of high rent.

Analysis of the effect of location on rent shows that distance to OBD influences rent by 23.04%. This suggests that houses close to the OBD do not necessarily command higher rent than houses farther away from the OBD. This means households are not willing to pay more to be located near the OBD, the emergence of 'serenity' as the dominant variable influencing land value in the study area does not conform to Alonso's bid rent theory. It can be suggested therefore that nearness to OBD does not mean high rent. Clearly, other considerations contributed to high rent about 77% explains this development.

The Alonso's bid rent theory as tested in this study in Port Harcourt, situation, its plausible explanation for this situation, its development of city suburbs thus making the Port Harcourt a polycentric city. High rate of economic activity across the city arising from oil exploration activities is also a factor that is responsible for the inapplicability of Alonso's bid rent theory in Port Harcourt.

The finding of the study that Port Harcourt exhibits polycentric characteristics and that house rent is not necessarily high around the central business district is in line with studies done on African cities particularly Nigerian cities (see Omirin 1997 and Olayinwola, 2006). Cities in this part of the globe have many sub-centres and are organically polycentric.

Conclusion

Housing gives sense of belongs to those who can afford, yet very many residents of cities in Nigeria cannot afford rent because it is high. This study essentially discusses the effect of distance to central business district on residential house rent pattern and the applicability of Alonso's bid rent theory (Alonso, 1964) which assumes that households locating near the OBD are willing to pay more for centrally located parcel of land because of high accessibility. Alonso concluded that this feature of urban use theory causes house rent to decline with distance from the city centre. The study however faults this claim. The empirical result of the findings reveals that rent does not decrease with distance from the OBD in Port Harcourt Metropolis. From the study also it is clear that distance to the OBD does not significantly dictate high rent. House rent is a product of many forces like the forces of demand and supply.

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