

THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

An Analysis of the Effect of Distance on Rental Values of Residential and Commercial Properties in Kumasi, Ghana

Paul Kitson Baffour Asamoah

Centre for Settlements Studies, College of Art and Built Environment
Kwame Nkrumah University of Science and Technology, Ghana

Festus Okoh Agyemang

Department of Planning and Development, Christian Service University College, Ghana

Joseph Edusei

Centre for Settlements Studies, College of Art and the Built Environment
Kwame Nkrumah University of Science and Technology, Ghana

Abstract:

The effect of distance on rental values (prices) has raised concerns on how rents increases vary from one area to another. The theory of bid rent proposed by Alonso shows an inverse relationship between distance and rent. Thus, the closer a property is to the Central Business District (CBD), the higher its value and vice versa. This study therefore sought to find out how this theory applies to rent charged on residential and commercial properties in Kumasi, the second largest city in Ghana. The study used the survey research approach and applied the cross-sectional design. In all, 100 respondents; fifty tenants and fifty landlords were selected using the simple random sampling technique. Analysis from the study validated the bid rent theory and indicated that distance from the CBD has an inverse relationship with the rent charged on residential and commercial properties in the Kumasi Metropolis. Thus, as distance increases from the Central business district of the Kumasi Metropolis, the prices of residential and commercial properties reduce and vice versa.

Keywords: Rental values, distance, residential, commercial, properties

1. Introduction

Rental values in general have been a major issue in both residential and commercial areas in major cities across the globe. This is due to the fact that individuals need shelter and need to undertake commercial activities for their livelihood. Likewise, firms need strategic positions in order to maximize profits. A building classified as residential is one which is used as a dwelling by an individual or group of individuals and provides separate family living quarters. A dwelling used for seasonal recreation and having living quarters for less than four separate family units is also classified as residential property (Minnesota Revenue Department, 2007). In a nutshell, a type of leased property containing either a single family or multifamily structure that is available for occupation for non-business purposes is said to be a residential property. Commercial buildings on the other hand are structures used purposely for retail and wholesale of goods and services. They can be found in both residential areas and the central business districts (CBD) (Willmore, 2011). Activities within these structures relate mostly to trading. The residential and commercial buildings make up the chunk of buildings found within human habitat (Dobermann, 2016). This is because humans need a place of abode and a place to transact business and therefore residential and commercial buildings are in high demand and as a result, command higher prices.

Rent for residential and commercial properties vary from one location to the other, however, commercial rent charges are relatively higher compared to residential (Iroha met et al. 2014). This, according to literature can be due to distance variation and location. For the reason to sustain their livelihoods, most people would like to be closer to commercial areas where most transactions take place. This is because they would like to travel a shorter distance to transact business in terms of cost and distance. Similarly, a household's demand for residential accommodation is influenced by the satisfaction or utility the household expects to derive (Coulombel, 2010). A business setup or commercial entity on the other hand demands a commercial building if the net revenue expected to be derived is high (Celka, 2011). The decision made by the household or commercial entity is dependent on whether satisfaction or net revenue yield will be maximized. How much each of these actors is willing to pay to prevent the building from going to another use is the rental value. As people compete for space in or around the CBD, these spaces become very expensive in terms of the values placed on them. The rental values within and around the CBD, therefore, become high and reduces as it moves further away from the CBD (Trussell, 2010).

2. Theory of Bid Rent

The theory of bid rent analysis can best be used in describing how distance has an effect on rental values in general. The bid rent theory is a geographical economic theory that states that the price and demand for properties changes as the distance from the Central Business District (CBD) changes (Alonso, 1964). It states that different land users will compete with one another for land close to the city center (Ahlfeldt, 2007). This is based upon the idea that retail establishments wish to maximize their profit, and so are much more willing to pay more money for land close to the CBD and less for land farther away from this area (Fong, 2011). Thus, the more accessible an area is, the greater the concentration of customers, which translates into more profits. Land users, be it retail, office, or residential, all compete for the most accessible land within the CBD. This can generally be shown in a 'bid rent curve', based on the premise that the more accessible the land in the central business district, the higher the rent. In this case, the net economic cost of movement will be lower in terms of distance, time and convenience in addition to greater competitive advantages, given greater accessibility of a location (Balchin et al, 2000). Kumasi as a metropolitan area in the Ashanti region of Ghana also has features similar to how distance affect commercial and residential rental values. The study therefore uses Kumasi to investigate the bid rent theory postulated by Alonso as shown in figure 1.

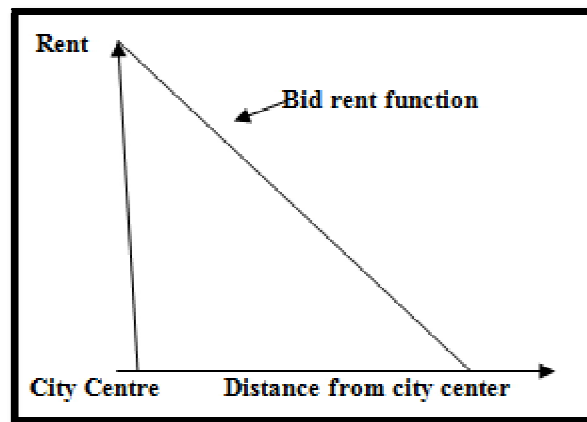


Figure 1: The Bid Rent Curve
Source: Alonso (1964)

As the simple model shows, rents are high near the city center and low in the periphery. By living farther away, residents suffer high transportation costs in exchange for lower rents (Franklin, 2015). Transportation costs in the rent gradient framework are not simply bus fares or fuel consumption. Also included in the cost of transportation is the opportunity cost of commuting. The basic bid rent model is very simple, and the bid rent curves of real cities do not perfectly match its form. The model requires many assumptions when examining it empirically.

3. Study Site

Kumasi, the capital of the Ashanti Region, is the chosen study area and is the second largest city in Ghana, after Accra the national capital. It is located 300 kilometers Northwest of Accra. Kumasi is a metropolitan area and covers a total land area of 245 square kilometers. The unique centrality of the city as a traversing point from all parts of the country makes it a special place for many to migrate to. Kumasi has been the cross roads between the northern and the southern sectors of the country, since its establishment as the seat of the Ashanti Empire. In addition to its fast physical and demographic growth as well as its role within the region, Kumasi is increasingly considered as an entity, extending beyond its administrative boundaries. It has some major suburb which includes; Asafo, Fante Newton, Amakom, Asokwa, Bomso, Oforikrom, Atonsu, Kotei, Oduom, etc. The CBD of Kumasi is Adum the central market and Kejetia where major trading activities takes place and surrounded by residential areas like Asafo, Fante Newton, Amakom and Asokwa. The final results of the 2010 Population and Housing Census (PHC) showed that the total population of Kumasi was 2,035,064 (GSS, 2012). The current population is estimated to be 2,940,779 using its annual growth rate of 5.4%

4. Methods

Well-structured questionnaires and interview guides were used to gather data from landlords and tenants as well as from relevant institutions such as rent control and Town and Country Planning Department within the study area. Secondary data was collected from journals, magazines, commentaries, and national documents, published and unpublished reports on the subject as well as from the internet. The simple random method was used to select tenants and landlords while the purposive sampling technique was used in selecting relevant institutions for the study, applying the cross-sectional design. In all, nine settlements within the Kumasi Metropolis were carefully selected based on two factors; the proximity to a transport

route and linear direction. The settlements include; Asafo, Fante Newtown, Amakom, Asokwa, Bomso, Oforikrom, Atonsu, Kotei, Oduom. This helped in the analysis because these settlements are not widely separated from each other geographically as depicted in figure 2. A total of 100 respondents comprising of owners and tenants was sampled using the formula; $n = N / (1 + N(\alpha)^2)$, where: n = sample size, N = sample frame, 1 = constant and α = the confidence level (95%) (Millerand Brewer. (2003). The sample size was obtained from commercial and residential properties along and closer to arterial roads in the selected settlements within the Kumasi Metropolis. The study area and the selected communities are shown in figure 2

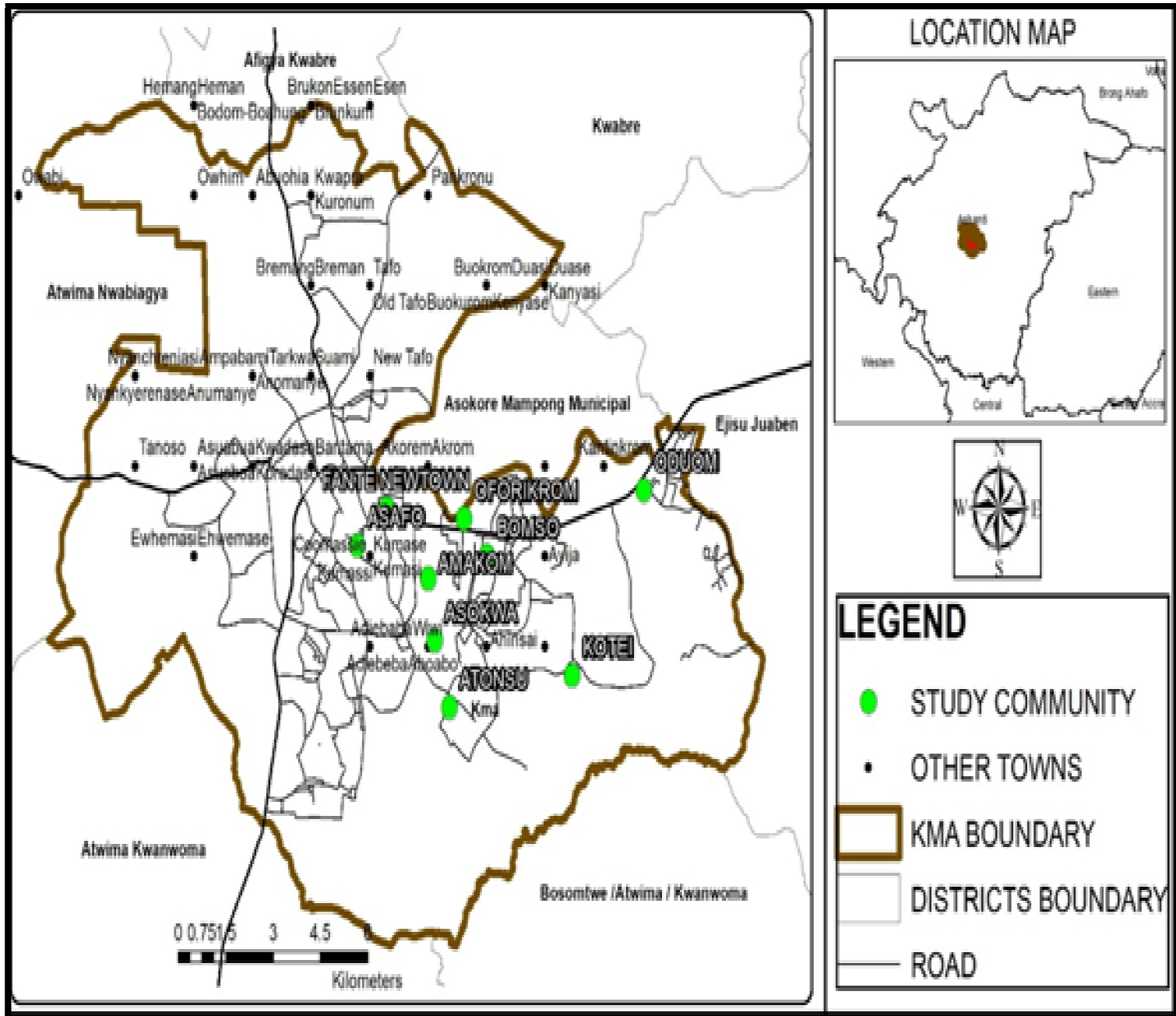


Figure 2: Map of the Kumasi Metropolis with Selected Communities
 Source: Adapted from KMA, 2017

5. Results and Discussions

5.1. Rent Charged and Distance from Central Business District

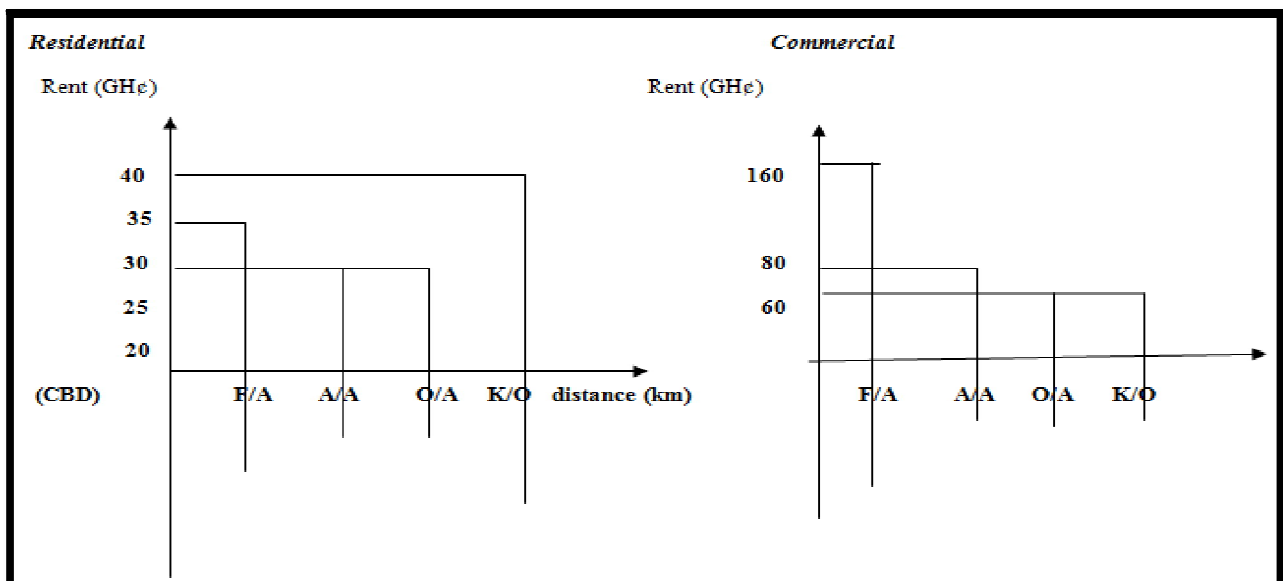
Table 1 shows rent charges for residential and commercial properties according to communities selected for the study.

Towns	Residential (Type of Room)	Average Rent Per Month (GH₵)*	Commercial Average Rent Per Month (GH₵)*
Asafo/ Fanti Newtown	Single room	35	160
	Chamber and hall	110	
	Apartment/flat	200	
Amakom/ AffulNkwanta/Asokwa	Single room	30	80
	Chamber and hall	100	
	Apartment/flat	200	
Oforikrom/Anloga/ Bomso	Single room	30	80
	Chamber and hall	80	
	Apartment/flat	160	
Atonsu/ Aboabo	Single room	35	60
	Chamber and hall	110	
	Apartment/flat	160	
Kotei/Oduom	Single room	40	100
	Chamber and hall	120	
	Apartment/flat	230	

*Table 1: Rent Charges in Respect of Commercial and Residential Properties in the Study Sites
Source: Field Survey, March, 2017*

From tables 1, the first four communities recorded almost the same rent charges for residential but different charges for commercial properties, especially Fanti Newtown and Asafo, which are less than one kilometre from the CBD. These two communities are closer to the CBD and therefore had higher rent charges for commercial spaces as compared to Amakom and Oforikrom, which are farther away from the CBD (about two and half kilometres from the CBD). In the case of Kotei and Oduom (almost seven kilometres away from the CBD), rent charged for residential is higher compared to the communities closer to the CBD. This can be attributed to the fact that these two communities are closer to Kwame Nkrumah University of Science and Technology where demand for residential accommodation is high because of the non-residential students' policy for continuing students of the University.

It can be deduced from table 1 that commercial activities and commands higher rental values and therefore conform to the Bid Rent Theory. It is for this reasons that rental values in Fanti Newton and Asafo, which are closer to the CBD are higher as compared to the other neighborhoods like Oforikrom (about three kilometres away) and Bomso (five kilometres away from the CBD). On the other hand, Kotei and Oduom had high residential rental values because these two communities are closer to KNUST where residential accommodation is in high demand and also attracts high income dwellers. The further investigated the effects of distance on rent in study communities and result is presented in figure 3.



*Figure 3: Diagrammatic Representation of the Effect of Distance on Rental Values
Source: Field Survey, March, 2017*

5.1.1. Key

F/A= Fanti Newtown and Asafo

A/A= Amakom and Asokwa

O/A= Oforikrom and Atonsu

K/O= Kotei and Oduom.

It can be concluded that distance greatly affects rent charges mostly on commercial properties closer to the CBD (higher rents) but reduces as one move farther away from the CBD. However, residential rent charges around the CBD are insignificantly higher but higher within the purely residential areas, which may be farther away from the CBD.

5.2. Perception of Landlords and Renters on the Relationship between Distance and Rental Values

Tenants and landlord were also asked to indicate their views as to whether distance affects residential rental values in the study sites. Surprisingly, about 54% of the tenants indicated that distance had no effect on the rent they pay and that it is dependent on the landlord and the facilities available in the residential area, coupled with in-house facilities and services. This assertion was also confirmed by landlords. About 96% of the landlords revealed that distance from the CBD to their property does not necessarily have influence on the rent they charge. They explained that location of the property and the facilities and services available in the house are the key factors that they consider in fixing rent. The few who responded that distance had influence on residential rent, explained that because their property is close to the CBD, (Fanti Newtown and Asafo) they charged a little higher because spaces compete among different land uses and high demand means high rent charges. However, all the commercial renters who were mostly close to the CBD said it had influence on the rent charged by property owners.

5.3. Pearson Regression Analysis

In order to validate the findings from the descriptive statistics, a regression analysis using regressed dependent variable (rent charged per month) against the independent variable (distance away from the CBD) was undertaken. Table 2 shows the results.

Models	R	R Square(R^2)	Adjusted R Squared (\bar{R}^2)	Std. Error of the Estimate
1	.243 ^a	.059	.039	50.673

Table 2: Model Summary
Source: Field Survey, March, 2017

In table 2, the R^2 refers to the total variation in the dependent variable (rent charged per month) that is explained by the variation in the independent variable (effect of distance on rental charges). From the result the R^2 is 0.059 which means that about 5.9 percent of the variation in the dependent variable (rent charged per month) is explained by the variation in the independent variable (effect of distance on rental charges). The remaining variation is explained by all other factors which affect the amount of rent charged. The \bar{R}^2 indicates what happens to the dependent variable when a new variable is added to the new equation. The \bar{R}^2 , which is 0.039 means that when a new independent variable is added to the regression equation about 3.9% of the variation in the dependent variable will be explained by the variation in the independent variable. Therefore, R is the correlation co-efficient of the regression. It is the linear relationship between the two variables which is the amount of rent charged per month and the effect of distance on the rental charges. The correlation co-efficient of 0.243 means that there is a weak positive linear association between the rent charged per month and distance away from the CBD.

The t-test was used to test the regression result at 5% significance level. The critical value ($t_{\alpha/2, n - k}$) is 2.021. The calculated t value is 1.717. This means that the regression is statistically significant at the 5% significance level, meaning the effect of distance away from the CBD on rental value is significant.

6. Conclusion

The correlation between distance and rental values of commercial and residential properties in in some selected communities in Kumasi were studied. The study indicated that aside distance there are other factors which affects rental values in general which includes include facilities and services, level of infrastructure development and location of the property in terms of zoning regulations. It was deduced from the literature review and analysis of the data that distance has some correlation on the rental values of commercial and residential properties. Commercial and residential properties around the CBD commands higher rental values and reduces as one move farther away from the CBD. However, there is still the question of location as a factor for determining rental values especially residential properties in areas zoned purely for residential activities. There is therefore the need for further studies with regard to residential rental determinants in the selected sites alongside the Bid Rent Theory. This notwithstanding, it can be concluded that distance has an effect on both commercial and residential rental values in Kumasi.

7. References

- i. Ahlfeldt, G. M. (2007). If Alonso was right: accessibility as determinant for attractiveness of urban location (No. 12). Hamburg contemporary economic discussions.
- ii. Alonso, W. (1964). Location and Land Use: Toward a General Theory of Land Rent.
- iii. Balchin, P. N.; Kieve, J. L.; and Bull, G. H. (2000). Urban Economics – A Global Rents Within the Atlanta Region, *Urban Studies*, 35: 1097 – 1118.
- iv. Celka, K. (2011). Determinants of Office Space Choice. *Journal of International Studies*, 4(1), 108-114.
- v. Coulombel, N. (2010). Residential choice and household behavior: state of the art. *Ecole Normale Supérieure de Cachan*.
- vi. Dobermann, T. (2016). *Urban Myanmar: Policy note*, November 2016. London: International Growth Centre.
- vii. Fong, C. (2011). *Valuation Concepts - Residential and Commercial Property Guideline* Page 6.
- viii. Franklin, S. (2015). Location, search costs and youth unemployment: A randomized trial of transport subsidies in Ethiopia. Centre for the Study of African Economies, University of Oxford.
- ix. Ghana Statistical Service (2013). *Population and Housing Census. National Analytical Report*. Accra: Ghana Statistical Service.
- x. Iroham, C. O., Oluwunmi, A. O., Simon, R. F., & Akerele, B. A. (2014). Assessing the trend in rental values of commercial properties along Oyemekun Road, Akure, Nigeria. *Covenant Journal of Research in the Built Environment (CJRBE)*, 1(1), 10-29.
- xi. Miller, R.I. and Brewer, J.D. (2003). *The A-Z of Social Research*. London: Sage
- xii. Minnesota Department of Revenue. (2007). *Assessment and Classification Practices Report : A report submitted to the Minnesota State Legislature pursuant to Minnesota Laws 2005, First Special Session Chapter 3, Article 1, Section 37 Property Tax Division*. Minnesota: Minnesota Revenue.
- xiii. Trussell, B. (2010). *The Bid Rent Gradient Theory in Eugene, Oregon: An Empirical Investigation*. Department of Economics, University of Oregon.
- xiv. Willmore, D. (2011). *Determining the Value of Real Commercial Estate. 3rd Quater Professional Report*. Available at: www.sior.com/.../How%20to%20Value%20Comm%20Real%20Estate-%20Willmore. Accessed on 10/01/2017.

ⁱ \$1 is equivalent to GH¢4.54