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IMPACT OF CEMETERY ON PROXIMATE RESIDENTIAL PROPERTY VALUE

***SODIYA, A.K.,[1] IBISOLA, A.S.[1] AND FATEYE, T.B.[2]**
[1]Department of Estate Management and Valuation, Moshood Abiola Polytechnic, Ogun State, Nigeria
[2]Department of Estate Management, Kaduna State University, Kaduna, Nigeria
*Corresponding author: abiodun.sodiya@gmail.com

Abstract
This study examined the probable impact of cemeteries on residential property value. The empirical inquiry aims at determining whether cemetery proximity has any significant bearing on the values of rental homes within its neighbourhood or not. Data was elicited via 150 questionnaires administered on rent paying residents around the neighbourhood of Atan Cemetery in Yaba, Lagos and analyzed using descriptive statistics and ordinary least square (OLS) regression tools. Result revealed that, consonant with earlier foreign studies, cemetery proximity is insignificantly related to rental values of residential properties located within 200 meter distance to the memorial site in the study area. The study concludes that where cemetery facilities receive proper care and attention, the effect of good maintenance could overshadow the associated probable gloomy impact of cemetery proximity to residential area and vice versa.

Key Words: *Proximity, Residential, Rental value, Cemetery*

Introduction

Many years back, cemeteries were generally restricted to the outskirts and peripheral part of cities, far from residential neighbourhood, but as time goes on, more began to emerge uptown as cities population keeps increasing. It has now become a vital component of the built environment carrying especial interest for the affective connection they provide between the past and the present as well as between the living and the dead (Lamm, 1999)

Meanwhile, diverse opinions have trailed this development with possible implication on proximate property value. Some believe living near a cemetery causes a scare and highly undesirable owing to their cultural, philosophical or personal belief system. On the other hand, a host of others consider it an answer to a prayer while a few other folks may be indifferent.

However, empirical studies have established that factors affecting value of properties are not inherent in the commodity but are created in the minds of individuals who make up the market (Appraisal Institute, 2008). Rents of properties are determined by market participants whose decisions are shaped by variety of social and economic factors. Consequently, cemetery location and the different opinions surrounding its likely

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effect on proximate residential property value constitute a social discourse that deserves empirical investigation in Nigeria.

Many studies have been conducted into different externalities and their effects on property values both in Nigeria and the world over. Some of these include effect of ocean view, (Rush and Briggink, 2000), highway noise barriers (Julien and Lanoie, 2007), noise from religious centres, proximity to railways, cell phone tower (Bond and Wang, 2005), landfills, oil pipeline, cemetery, parks and green spaces among others. From the various empirical studies conducted on impact of open space use related externalities on property values, cemeteries remains the least studied (Larson and Coleman, 2010). A search of literature reveals few studies in this direction and the available ones are essentially foreign based (Bolitzer and Netusil, 2000; Lutzenhiser and Netusil, 2000; Larson and Coleman, 2010). In Nigeria, researches have only probed into ecological, environmental and socio-economic concerns over cemeteries proximity to residential uses (Olajide and Abiodun, 2013; Olajide *et al.*, 2013; Uslu *et al.*, 2009). No studies have examined whether correlation exist or not between cemeteries and residential house prices.

This study therefore intends to open an indigenous discourse in this less examined subject. It endeavours to establish whether correlation exist or not between cemeteries and value of proximate residential properties in a selected area within Lagos metropolis. The study conducts a synchronous inquiry into value effect emerging from distance to and view of a cemetery.

Literature Review

Cemetery Characteristics and Its Effect on Value

From previous foreign studies, effect of cemetery proximity on residential property value cannot be said to be absolute. It is neither entirely positive nor entirely negative as a result of changes in research location and methodology. On one right, cemeteries provide a place for fun walk and runs as well as a relatively pleasing view of trees and green. It also functions as tourist destinations, visitors centre and museum, wedding hosting location, contact point and performance theatre amongst others (SALGA, 2016; Price, 2014; Izunwa, 2016). In addition, a person who intends to frequently visit final resting place of a loved one might appreciate a house located conveniently close to the cemetery.

The foregoing advantages may stir a purchaser to prefer to pay a premium for a house located in close proximity to cemetery while on the other hand, prices are most probably discounted where proximity is considered as a negative externality to express the depression effect arising from this perception.

However, the advantages can be compromised by disrepair occasioned by vandalism from trespassers to the cemetery (Price, 2014). The clean appearance in cemetery, which makes it appealing will no longer be present where the facility does not enjoy adequate maintenance or suffers from constant vandalism. Also, noise disturbances from visitors and workers can work to down play the initial guarantee of a permanently quiet neighbour which some residents in close proximity may envisage (Price, 2014). In addition, potential physical dangers to nearby dwellers due to the release of hazardous chemical compounds

into the surrounding ground water can lead to poisoning and diseases. Chemicals used in embalming practices and preservatives on wood coffins constitute major sources of contaminants amongst others (Spongberg and Becks, 2000; Guttman *et al*., 2012). The harmful chemical compound decompose from the corpse and funeral artefacts and run off to the surrounding ground water and the threat of this danger becomes a major concern particularly in an economy like ours where over 70% of Nigerians households depend on ground water supply.

Vezzani (2007) and Akinbogun (2015) assert that mosquitoes and rats respectively are medically believed to be important vectors of diseases from cemeteries. The latter mentioned that medical experts in Nigeria discovered that outbreak of Lassa fever epidemic in certain urban centres are traceable to location of graves within residential properties. Rat, which is the chief vector of the disease, according to him, burrows into graves of infected corpses to feed on them and later spread the disease by feeding on domestic foodstuffs.

Finally, another negative effect of cemetery proximity to dwelling house is the associated psychological impact on dwellers (Larsen and Coleman, 2001). For some, the sight of a tombstone or cemetery may be unsettling and for others, knowledge of a nearby cemetery can trigger an emotional and mental imbalance. Imagine a birthday celebration holding in a residence overlooking a cemetery where an interment service is taking place at the same time or running into a group of wailers accompanying a corpse to a cemetery around your home while going to work in the morning. These may have an inhibiting effect on a happy mood.

The above factors may influence a would-be purchaser or renter who may lower their bid or out rightly refuse to make offer on residential properties with a cemetery view or within close distance.

Cemetery Proximity and the Belief System

Among most cultures, cemeteries are more than just a place of burial. They carry spiritual, cultural and religious significance (SALGA, 2016) and individual disposition towards this culture and belief vary from one to another. For instance, Yoruba aborigines do not bury people in the public cemeteries but in the family compound, as a cultural practice, in fact, sometimes, burials are done in the person's particular room. The belief system among the tribe is that burying outside the family compound appears like throwing away and loosing contact with the person totally (Izunwa, 2016). This is because regular ancestral veneration which involves pouring libation, breaking kola nuts and praying on the grave of the diseased might not be possible outside the home.

Meanwhile, the Chinese seek out a "*feng-sui*" lifestyle, which means living near a cemetery is completely unacceptable. The Chinese philosophical system believe that cemeteries harbour some negative energies that can cause unfavourable effects in human lives, therefore, homes with close proximity to cemetery is highly undesirable.

Cultural or religious position does not really matter to some; they do not really care about religious or cultural position on living close to cemetery. However, they just have an unfavourable psychological disposition about pitching their tent next to one. This has a lot to do with the believe

system about the existence of ghosts. A Poll conducted by Harris (2013) revealed that 42 % of Americans believe the above and belief that many ghosts are found around the cemeteries. On the other hand, to certain other individuals, living close of cemetery is an answer to a wish list. It is considered as a plus as they claim it gives an assurance of a consistently quiet neighbour and makes it possible to enjoy an unimpeded and often green view. To this class of people, as observed by Price (2014) in New York, living near cemetery has no bearing on the value of a home and little to no average in getting a discounted price. A nationwide real estate company in United States of America, analyzed the prices of homes less than 50 feet from some selected cemeteries and compared them to the prices of homes further away – 100, 200, 500 and even a 1000 yards. Results indicated that on average, homes rather close to cemeteries were sold for more (Redfin, 2013), although much is not elaborated on the analytical tool used in the research.

Bolitzer and Netusil (2000) adopted regression analysis to study how house selling price is affected by nearness of the houses to cemeteries and other open space property uses. They analyzed and compared selling prices of 662 houses located within 1,500 feet to one of 15 cemeteries with prices of 6,005 houses that are not located within 1,500 feet range of any type of open space (e.g. cemetery, golf course and public parks etc.). The research concluded that no significant correlation existed between house prices and cemetery proximity.

Using the same study sample and method, Lutzenhiser and Netusil (2000) again found out that no significant difference existed between house prices on either side of the 1500 foot demarcation. Of important note is the fact that in Bolitzer and Netusil (2000), distance to cemetery is the only cemetery attribute considered while Lutzenhiser and Netusil (2000) included cemetery size and distance to cemetery in the regression model.

Meanwhile, Larsen and Coleman (2010) analysed 575 single – family houses in the vicinity of four (4) cemeteries, all located in Greene County, Ohio. Regression analysis was used with twelve (12) variables. Included in these variables are two components (view and distance) attributable to cemetery proximity, which is an improvement on earlier research. Cemetery view was included in the comparison to improve on the earlier studies which suffered methodological criticism due to failure to consider this important attribute. It was argued that 'view' might represent a better demarcation criterion rather than "1500 feet" demarcation point arbitrarily selected on the advice of metropolitan park specialists. When the data from all the 4 cemeteries were tested in a single model, the variables of interest (view and distance) were highly insignificant in the estimation, revealing that no price effect can be attributable to cemetery proximity. The result is in consonance with previously stated studies above. However, different results were derived when data for each of the cemetery were analyzed differently.

However, the fact that result vary by cemetery suggest the possibility that previous studies might have arrived at different conclusion if they had not aggregated all the cemeteries into a single model.

Study Area

Atan cemetery is located on Moore Road, Yaba Lagos on latitude 6.51475 and

longitude 3.37888. It is a 25 hectare cemetery built in 1868 by the British Colonialists and it is classified as the oldest cemetery in Nigeria. It is a civil cemetery containing the largest concentration of World War II era war graves and Nigerian Soldiers who died in the service of the British Crown, totalling about 411. The cemetery is divided into two sections, with one being for "all-comers" and the other reserved for the affluent. The public section is overgrown with weeds and suffers from bad management.

The private section is called Ebony Millennium Cemetery, managed by Ebony Casket Ventures. This section is well maintained and manned with all day security.

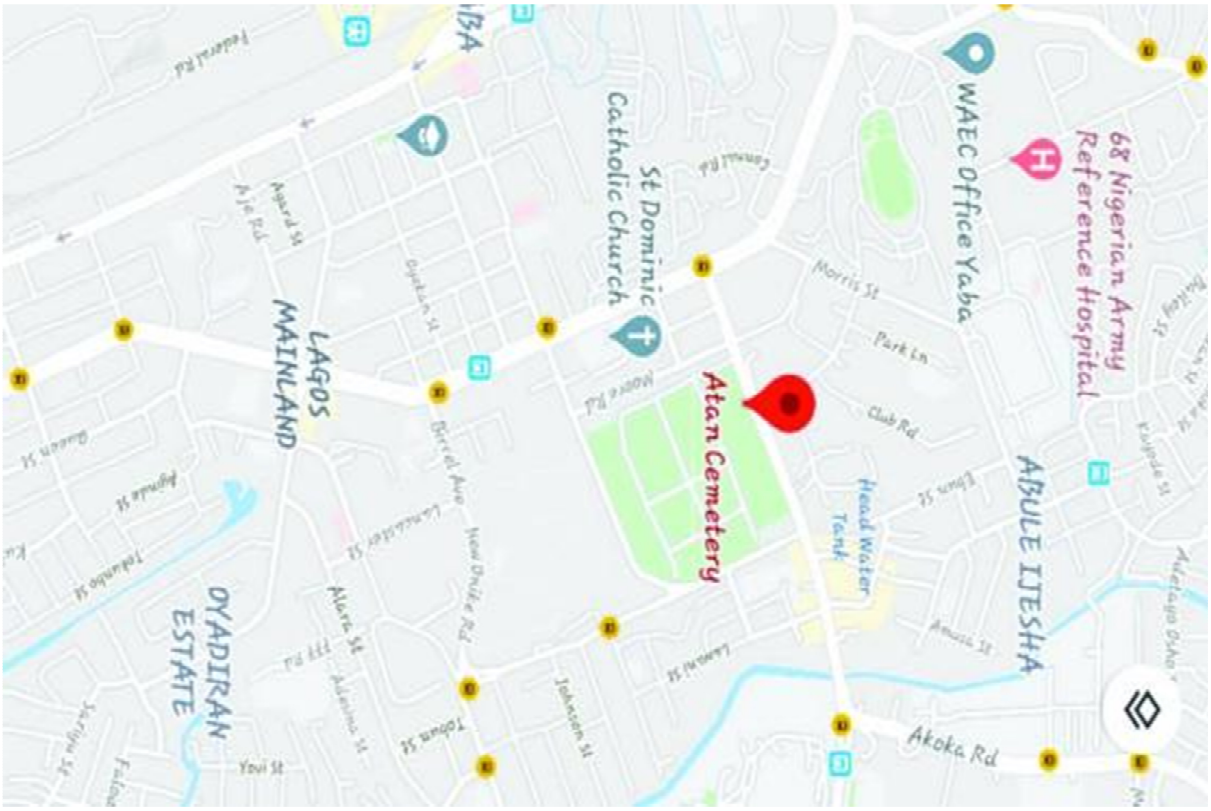

Fig 1: Map of Yaba, Lagos State Showing Atan Cemetery

Yaba is a suburb located on Mainland, Lagos State, predominantly characterized by residential properties and government institutions. These include private residences, Jacob Mews Estate, Pearl View Estate, Queen's College, Nigeria Institute of Medical Research, Yaba College of Technology, University of Lagos and Neuropsychiatric Hospital amongst others. This cemetery was considered because of its rich history, significance and expansive land size which may impact on the study.

Methodology

Samples Collection

The study analyses rental transactions on 150 houses within the neighbourhood of Atan cemeteries located in Yaba, Lagos State Nigeria. Primary data were sought

through questionnaire distributed to occupants of residential apartments within 200m radius from the cemetery. A four-point distance range in the order of 0 – 50 m, 51 – 100 m, 101 – 50 m and 151 – 200 m was adopted to test the relationship between rental price of properties and cemetery proximity. Proximity is analyzed using distance and view as parameters.

Descriptive analysis was used to determine the importance of each variable in rent determination while multiple regression was adopted in the analysis of the data to confirm whether there is correlation between distance to the cemeteries and rental value as well as view of the cemeteries and rental value of residential houses around the facility.

Result and Discussion

Table 1: Descriptive Analysis of Property Attributes

Variables	Mean	Std. Dev.	Min.	Max.
Size of living room	4.5493	.62767	3.00	5.00
No. of bedroom	4.3662	.59135	3.00	5.00
Tiling of apartment	4.3521	.73870	2.00	5.00
No. of Toilet	4.0845	.73186	2.00	5.00
No. of bathroom	3.9859	.78364	2.00	5.00
Distance from the house to the nearest cemetery	3.7606	.85297	2.00	5.00
Proximity to workplace	3.7042	.93189	2.00	5.00
Direct view to cemetery	3.6620	.89353	2.00	5.00
Size of parking lot	3.5493	.90694	1.00	5.00

The analysis in Table 1 above accentuates the hierarchy of importance of property attributes as valued by the tenants in the rented apartments around Atan cemetery, Yaba, Lagos State. The study identified from literature nine (9) property characteristics that may influence rental value of residential properties *vis-à-vis* proximity to cemetery and adopted them for the study and the submission of the respondents were ranked on 5 Likert scale ranging from least (strongly disagree) to the highest (strongly agree) which were analyzed by mean – standard deviation model as shown in the table. The result of the analysis showed that property characteristics such as: size of the living room (4.549), number of bedrooms (4.366), tiling of apartment (4.352) and number of toilets (4.085) were the four foremost characteristics, judging from their mean value. Other group of property attributes that were noted to be influential after the above were number of bathroom (3.986), distance from the nearest cemetery (3.761) while characteristics such as proximity to work place (3.704), cemetery view (3.662) and size of parking lot (3.549) were observed to attract least consideration in the determination of rental value of residential properties in the neighbourhood as indicated by the respondents. This implies that attributes such as living room size, number of bedroom, tiling of apartment, and number of toilets and bathroom are more important in determining what rent the tenants are willing to pay than distance to the cemetery and cemetery view.

Invariably, nearness to work place; whether or not the properties have a view that overlooks the cemetery and the size of

parking lot in the properties do not enjoy much importance in the minds of property renters in the neighbourhood and by extension play minimal role in determination of rental value. Similar to an earlier study in Oloke *et al*. (2013) and the discussion in Sodiya *et al*. (2016), proximity to work place is becoming less important in the consideration of home seekers in Lagos State. The result in this study further lent credence to the emerging fact that nearness to work place is no longer one of the priorities of renters in renting an apartment, which is contrary to the result in a study conducted in Ghana (Amenyah and Fletcher, 2013).

Table 2: Regression Analysis for Residential Properties around Atan Cemetery, Yaba, Lagos

Factors	B-Estimation	Std. Error.	t-value	Sig.
(Constant)	2.252	1.870	1.205	.233
Factor- Size of living room	-.117	.336	-.349	.728
No. Of bedroom	-.088	.433	-.203	.840
No. Of Toilet	.084	.335	.251	.803
No. Of bathroom	.139	.293	.473	.638
Tiling of apartment	-.146	.265	-.549	.585
Size of parking lot	.153	.227	.675	.502
Proximity to workplace	.004	.227	.016	.987
Direct view to cemetery	.179	.211	.850	.399
Distance from the house to the nearest cemetery	-.032	.222	-.143	.887
Adjusted R2 = .3095 F-Value = .566 Prob. = .708				

The study probed further by regressing the influencing property attributes on the rental value of properties within the distance of 0 – 200 m radius to Atan Cemetery and the analysis was done using Ordinary least square (OLS) regression model with result presented in Table 2. The analysis revealed that the variables have both positive and negative effect, though at varying degrees. For instance, influencing attributes with positive beta coefficient such as number of toilet (0.084); bathroom (0.139), Cemetery view (0.179) and size of parking lot (0.153) among of others contributed positively to rental value of properties within the neighbourhood while size of living room (-0.117) and distance to cemetery (-0.032) with negative beta coefficients affect rental value adversely.

However, the analysis (positive and negative) revealed that the variables are insignificant as reported by the probability value (P>0.05). This implies that their contributory effect on rental value of properties in the neighbourhood is insignificant. Also, the model summary reports that the explanatory variables (i.e the property attributes) account for 30.95 percent variance in explaining the rental value as shown by the adjusted R squared. The F-Value of the model is 0.566 with non-significant P-Value of 0.708 (P>0.05) indicating that the combined effect of the model has no significant explanation power on the rental value of the properties within the cemetery neighbourhood. Emphasizing on the two variables of interest, the estimators for both distance and view are largely insignificant,

showing that neither distance from a cemetery nor cemetery view has significant effect on proximate residential property rental value.

The result from this study is in consonance with the outcome of research works in Bolitizer and Netusil (2000), Lutzenhiser and Netusil (2000) and Larsen and Coleman (2010). Bolitizer and Netusil (2000) examined how 662 single family house selling prices are influenced by proximity of the houses to variety of open space property uses, including cemeteries in Oregon within 1500 ft (457m) distance and reported that there is no significant differences in prices attributable to cemetery proximity. Lutzenhiser and Netusil (2000) also adopted the same data and methodology in another study to find out if relationship exists between house prices and cemetery proximity. Again, house prices are found to be insignificantly related. The only difference between the two studies is that the latter include cemetery size as an additional variable to measure the influence while the former only rely on distance to cemetery as the only measurement yardstick for cemetery proximity. These studies are notable pioneer efforts although they suffer from scholarly methodological criticisms, especially as a result of the 1500-foot demarcation criterion which was adopted without any scientifically substantiated basis.

Larsen and Coleman (2010) also analyzed transactions of 575 Single family houses in the vicinity of four cemeteries within Greene County, Ohio. In the work, 12 variables (Property Characteristics) were considered in all, including cemetery view which was not considered in the earlier research. The researchers assumed that view might represent a better demarcation point than other cemetery variables previously used. The mindset here is that where a bedroom or living room of a house overlooks a cemetery, it might carry a special effect or significance which may not have been captured in the earlier studies, hence the need for the adoption of cemetery view and distance to cemetery as the two interest variables. The outcome of the study was similar to the two earlier studies when data from all the four cemeteries were analyzed with a single estimate. The estimators for both 'view' and 'distance' were highly insignificant with an indication that neither cemetery view nor distance from cemetery has a significant effect on proximate house price. A notable contribution from the study, however, was that probability exists that result may vary as we move from one cemetery to another and this position was justified when the data from the four cemetery areas were analysed individually.

For two of the cemeteries, no price effect can be attributed to 'view'. That is, view does not have any significant contribution to house prices. For another, the estimator for view was negative (US$6,291.89) which means that the closer the view, the higher the house price and vice versa. Estimator for view at the fourth cemetery was positive (US$8,521.46). This implies that the closer or clearer the view the lower the house price and the more remote or farther the view the higher the price. Distance is also insignificant in two of the four study areas and even in the other two where distance was significant, the premium ($28.58 and $29.58) were marginal as compared to cemetery view. This revealed that 'view' may be more important than 'distance'.

Table 3: Yes/No Statements

Statements	Yes (%)	No (%)	Indifference (%)
Do you have a partial/direct view of the nearest cemetery from your residence?	44(40.7)	64(59.3)	-
Are you satisfied with the level of maintenance obtainable at the nearest cemetery?	70(64.8)	29(26.9)	9(8.3)
Were you aware of the presence of cemetery around before moving to the neighbourhood?	70(64.8)	38(35.2)	-

From Table 3 above, 41% of the respondents said they have either partial or direct view of the cemetery while 59% said they did not have any view from their residence. Less than average (41%) of the respondents confirmed the cemetery is within eyeshot distances to their houses and that they have full or limited sight of the facility while a little above average (59%) claimed that they have no view of the cemetery, perhaps as a result of the remoteness of the houses relative to the facility. Meanwhile, 65% of the respondents are satisfied with the level of maintenance obtainable in the cemetery, 27% were not satisfied while 8% were indifferent. A well maintained cemetery will give a pleasing view with a sense of a recreational and public green. Since majority are satisfied with the maintenance level in the cemetery, it means more are pleased with the view it offers in relation to their environment and are more likely to consider it as a memorial park without any depressing capabilities 65% said they were aware of the presence of cemetery within the neighbourhood before moving in while 35% said they were not aware until they moved in. This implies that majority of the residents in the vicinity of the cemetery are located in the neighbourhood by choice, not by mistake, while others only knew about the existence of the cemetery when they got there.

Conclusion

This shows that cemetery as an open space property does not enhance or depress the rental value of the residential properties in the study area. Suffice to say that cemetery is neither a positive nor negative externality. This position is however not sacrosanct as the viewpoint was informed by the outcome of the study. Where the study area or the measurement variables are varied, the result may as well change. In addition, apart from view and distance to cemetery, level of maintenance obtainable in a cemetery could also be an important factor. As observed in the study, majority of respondents said they were satisfied with the maintenance level obtainable at the cemetery. The resultant pleasing view can provide a psychological boost which could mask possible negative effect. Atan cemetery has both private and public sections with varying maintenance status. Where the facility receives proper care and attention, the effect of good maintenance could overshadow or repress the associated gloomy impact of view and distance to cemetery and *vice versa*. This and other factors may introduce a different twist to research outcome should other cemetery locations be investigated.

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