An Assessment of Factors Influencing Executive Apartment Prices in Nairobi Metropolitan Area of Kenya

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ABSTRACT

The objective of this study was to establish the factors that significantly influence executive apartment prices in Nairobi metropolitan area which includes parts some surrounding counties like Kiambu, Machakos and Kajiado. The factors studied related to attributes of the executive apartments including: proximity to shopping malls, proximity to Nairobi's central business district, proximity to schools, proximity to slums, presence of swimming pool, presence of balcony, size of apartment, periodic rental income and land value. Both secondary and primary data sources were employed in the research and 30 executive apartments were selected as the study sample. Multiple regression analysis was employed for the secondary data and the findings indicated that size of theapartment, periodic rental income and land value where the apartment is located had significant influence on the price of the apartment. Descriptive statistical analysis was employed for primary data and the findings were consistent with those of secondary data in as far as the determinants of size of theapartment, periodic rental income and land value are concerned which were that the 3 attributes had significant influence on the price of the apartment.

Key words: executive apartments, apartment attributes,

INTRODUCTION
Background of the Study
In the real estate market the value of a property composed of the property's price or rent income. Similar to any market, economist will define the price or rent of a property as beinginfluenced by the forces of demand and supply and the interaction of these two factors in the market. As a result,the price at which buyers or tenants are willing to purchase or rent a property and the price at which sellers or landlords are willing to sell or rent the same property is defined as the value of that property (Brueggenan and Fisher, 2011).
In Nairobi County living inestate apartmentsis a growing concept in the real estate market which is attributable to the householders demand for housing with unique amenities in addition to placing importance on security (Kenya Bankers Association, 2016). The developers and real estate agents are keen to portray the benefits of estate apartments in order forhome buyers and tenants be willing to pay a premium for such benefits which include security and socialization benefits: (Muiga and Rukwaro, 2016).
Both the public and the government is concerned about the rising housing prices in Nairobi and efforts have been made to build low cost housing for majority of the residents of the city who cannot afford the current houses on offer (Kenya Bankers Association, 2016). Limited land and a growing population in Nairobi triggered by rural to urban migration has caused many Nairobi

residents to demand apartments which happen to be within estates and offer security and common amenities including cleaning services (Muiga and Rukwaro, 2016).

Research Objective
To assess factors influencing executive apartments prices in Nairobi County

Research Hypothesis
H_0: *There is no significant relationship between each of the factors and prices of executive apartments in Nairobi metropolitan area*

LITERATURE REVIEW
Numerous studies have been done and have provided mixed findings regarding the determinants of housing prices. Candas, Kalkan and Yomralioglu, (2015) carried out a study in Istanbul Turkey and examined the determinants of house prices in and employed location attributes, presence of elevators, the floor in case of apartments, heating systems, land value and rent income value. The study used 116 valuation reports and employed multiple regression analysis data analysis method and established that the floor the apartment was located alongside the presence of heating system, the land value and rent value had significant influence on the price of the house. The focus of the current study would be to compare whether the significant determinants of housing prices in other regions of the world like Turkey would also be applicable in Nairobi.

Chung, (2012) studied the determinants of residential property prices in Hong Kong using a cointegration analysis approach. The study focused on house sizes that ranged from very small of below $40M^2$ to the very large size of above $160M^2$. The study established that average annual rent income, excess liquidity, Hong Kong stock market index, real interest rates significantly influenced average price of residential houses. The study focused on macroeconomic determinants unlike the study by Candas, Kalkan and Yomralioglu, (2015); Amenyah and Afenyi, (2013); Aluko, (2011). Chung. (2012) study also differs from the current which focuses on housing attributes as the determinants of apartment prices in Nairobi Metropolitan area.From the above two studies the first research hypothesis was developed as follows:

H_1: *There is a significant relationship between the prices of executive apartments in Nairobi metropolitan area and their related sizes, land value and rental income value*

Amenyah and Afenyi, (2013) carried out a study in Accra Ghana on factors determining residential rental prices. The involved 100 households and it employed the Chi-square technique to assess the association between determinants and house prices in Accra. The findings were that location, size of the house, connection to utility facilities appeared to have significant influence on house rent prices. The study focused on low cost housing units and had determinants relating to connection to utilities unlike the current research which focuses on determinants of pricing of executive apartments in Nairobi where connection to utilities would automatically be in place.From this research the second hypothesis was developed as follows:

H_2: *There is a significant relationship between the prices of executive apartments in Nairobi metropolitan area and their related location attributes including proximity to shopping malls, schools, slum and Nairobi CBD areas*

Aluko, (2011) studied the effects of location and neighborhood attributes on housing valuesin metropolitan Lagos. Locational attributes included: proximity to workplace, schools, shopping, recreation and worship centers. Neighborhood attributes included: crime levels, noise levels and

the cost of refuse collection. Structural attributes included: area of land occupied by building, number of rooms in the house, number of persons per house, number of kitchens, bathrooms and open spaces per house. Multiple regression analysis was employed and the study found that neighborhood and locational attributes significantly influence on house values when small housing units were examined. From this research a hypothesis was developed as follows:

H_3: *There is a significant relationship between the prices of executive apartments in Nairobi metropolitan area and the structural attributes of apartment including their presence of a balcony and swimming pool*

RESEARCH METHODOLOGY
Research Design
Cross sectional quantitative and descriptive research designs were employed in this research where the quantitative design was to cater for the secondary data that was quantitative in nature while the descriptive design was to cater for the primary data that was in the form of a questionnaire.

Population and Sampling
There is no official list of apartments in Nairobi metropolitan area and hence 30 residential estates that contain 3 bed-roomed apartments were selected for the research as indicated in Appendix 2.

Data Collection
Secondary data was drawn from the internet websites that indicated sale or rent of the 30 residential apartments as indicated in appendix 2. Primary data in the form of 150 self-administered 3 point likert scale closed ended questionnaire was administered to residents of the 30 residential apartments to the residents using convenient sampling technique.

Data Analysis
Data was analyzed by employing a multiple regression analysis model where the dependent variable was apartment price while the independent variables included: proximity to shopping malls, proximity to Nairobi's central business district, proximity to schools, proximity to slums, presence of swimming pool, presence of balcony, size of apartment, periodic rental income and land value.

The

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + e$$

Where:
Y = Apartment's price (Kenya shillings)
X_1 = Proximity to shopping malls (kilometers)
X_2 = Proximity to Nairobi's central business district - CBD (kilometers)
X_3 = Proximity to schools (kilometers)
X_4 = Proximity to slums (kilometers)
X_5 = Presence of swimming pool (dummy variables 0/1)
X_6 = Presence of balcony (dummy variables 0/1)
X_7 = Size of apartment - Floor area (dummy variables square meters)
X_8 = Periodic rental income or value (monthly)
X_9 = Land value (Kenya Shillings)
e = error term
β = coefficients
β_0 = constant

RESULTS
Secondary Research Findings

Normality Test Results

According to the one sample Kolmogorov-Smirnov normality test, the variables of the research were generally normally distributed as depicted in Table 1 which implied that parametric tests could be carried out in the data relating to the research.

Table 1: Normality Test Results

		N	Normal Parameters[a,b]		Most Extreme Differences			Kolmogorov-Smirnov Z	Asymp. Sig. (2-tailed)	a. Test distribution is Normal.
			Mean	Std. Deviation	Absolute	Positive	Negative			
One-Sample Kolmogorov-Smirnov Test	price	30	14398.33	15242.887	.291	.281	-.291	1.593	.013	
	malls	30	3.2267	2.39049	.204	.204	-.142	1.120	.163	
	NBI_CBD	30	13.7967	9.87971	.166	.158	-.166	.908	.382	
	schools	30	2.3233	1.60166	.280	.280	-.138	1.534	.018	
	slums	30	5.3567	3.26134	.128	.128	-.091	.701	.710	
	pool	30	.1333	.34575	.517	.517	-.350	2.831	.000	
	balcony	30	.6667	.47946	.423	.251	-.423	2.318	.000	
	landscaping	30	1.0000	.00000[c]						
	floor_area	30	132.4333	30.73994	.157	.157	-.112	.860	.450	
	rental_income	30	56.3000	37.48301	.214	.214	-.202	1.171	.129	
	land_value	30	83216.67	120850.663	.344	.344	-.264	1.884	.002	

The adjusted R – square results indicated that the determinants could explain 91.6% of the movement in apartment property prices while 8.4% of the movement could be explained by other factors as per Table 2.

Table 2: R –Square Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.971[a]	.942	.916	4411.99990
a. Predictors: (Constant), land_value, malls, balcony, schools, slums, NBI_CBD, size, pool, rent_month				

The findings on joint influence of the determinants on the dependent variable property price indicated that the independent variables were jointly significantly influential on the property price as per Table 3 with p-value being 0.000 which was less than 0.05 at 95% level of significance.

Table 3: ANOVA Results

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6348707555.169	9	705411950.574	36.239	.000[b]
	Residual	389314861.498	20	19465743.075		
	Total	6738022416.667	29			
a. Dependent Variable: price						
b. Predictors: (Constant), land_value, malls, balcony, schools, slums, NBI_CBD, size, pool, rent_month						

The multiple regression results indicated thatsize in terms of floor area, monthly rent and land value had a significant influence on prices of executive apartments with p-value being 0.051, 0.000 and 0.012 respectively which was less than 0.05 at 95% level of significance as per Table 4.

Implications of Regression Analysis Findings on Hypotheses

Based on these findings, the firstnull hypothesis $H0_1$: *There is no significant relationship between the prices of executive apartments in Nairobi metropolitan area and their related sizes, land value and rental income value,*was rejected. While the 2nd and 3rd null hypotheses $H0_2$: *There is no significant relationship between the prices of executive apartments in Nairobi metropolitan area and their related location attributes including proximity to shopping malls, schools, slum and Nairobi CBD areas*and $H0_3$: *There no significant relationship between the prices of executive apartments in Nairobi metropolitan area and the structural attributes of apartment including their presence of a balcony and swimming pool* were both not rejected as per Table 4.

Table 4: Regression Analysis Results

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-7990.214	6276.409		-1.273	.218
	Proximity to shopping malls	-122.944	376.016	-.019	-.327	.747
	Proximity to Nairobi CBD	179.586	110.538	.116	1.625	.120
	Proximity to schools	-565.262	582.770	-.059	-.970	.344
	Proximity to slums	374.209	309.352	.080	1.210	.241
	Presence of swimming pool	-4140.616	3697.205	-.094	-1.120	.276
	Presence of balcony	-704.273	2158.447	-.022	-.326	.748
	Size (floor area)	-33.924	41.676	-.068	-.814	.051
	Rent /month	442.133	44.182	1.087	10.007	.000
	Land value	.003	.010	.023	.295	.012
a. Dependent variable: price						

Primary Data Research Findings

Response Rate and Characteristics of the Respondents
Out of the 200 questionnaires distributed to residents of executive apartments being studied, 122 were filled which constituted 61% response rate. The characteristics of the respondents were as follows: in terms of gender of the residents of the apartments 42% of the respondents were male and 58% were female.In terms of the number of occupants per apartment 19% have 1 to 2 occupants, 58% of have 3 to 5 occupants, 21% of the have 6 to 8 occupants, and only 2% have more than 8 occupants.

Resident Perspectives on the factors influencing Apartment Prices in Nairobi
According to the residents of sampled apartments using a 3 point likert scale all the factors had significant influence except for proximity to slum areas and presence of balcony in the apartments. The size in terms of floor area of had the most influence on the apartment pricing.

Table 4: Resident Perspectives on the factors influencing Apartment Prices in Nairobi

S/N	House Attributes	Average Rating (out of 3)	Degree of influence on Apartment Prices
1	Proximity to Nairobi CBD	2.4	Significant
2	Proximity to schools	2	Significant
3	Proximity to shopping malls	2.4	Significant
4	Proximity to slum areas	1.9	Not Significant
5	Presence of swimming pool	2	Significant
6	Presence of balcony	1.8	Not Significant
7	Size of housing	2.8	Very Significant
8	Landscaping	2.4	Significant
9	Rental income	2.5	Significant
10	Land value	2.5	Significant

Triangulation of Findings from Primary and Secondary Data Sources

The findings of secondary and primary data analysis were triangulated and the results were that 5 out of 10 determinants had consistent effect on the apartment prices in Nairobi metropolitan area while the remaining 5 out of 10 had inconsistent effect.Two of the determinants had consistent insignificant effect including: proximity of slum areas, presence of balcony. Three of the determinants had consistent significant effect on apartment prices including: size of the apartment, land value where the apartment is located and the rental value of the apartment as indicated in Table 5.

Table 5:Triangulation of Findings from Primary and Secondary Data Sources

S/N	Apartment Attributes	Secondary data findings on determinants of apartment prices in Nairobi	Primary data findings on determinants of apartment prices in Nairobi	Consistency between secondary and primary data findings
1	Proximity to Nairobi CBD	Not Significant	Significant	Inconsistent
2	Proximity to Schools	Not Significant	Significant	Inconsistent
3	Proximity to Shopping Mall	Not Significant	Significant	Inconsistent
4	Proximity to Slum Dwelling	Not Significant	Not Significant	Consistent
5	Presence of swimming pool	Not Significant	Significant	Inconsistent
6	Presence of Balcony	Not Significant	Not Significant	Consistent
7	Size of housing	Significant	Significant	Consistent
8	Landscaping	Not significant	Significant	Inconsistent
9	Rental income	Significant	Significant	Consistent
10	Land value	Significant	Significant	Consistent

DISCUSSIONS

From the findings of the current research, the determinants that have significant influence on apartment price include size of the apartment, the rental value and land value where the apartment is built. These findings are consistent with those of Candas, Kalkan and Yomralioglu, (2015) who found that these 3 factors had significant influence on house prices in Turkey.

RECOMMENDATIONS

Stakeholders interested in establishing the prices of executive apartments in the Nairobi metropolitan area should focus on the 3 key influential factors of size of the apartment, its rental income value and land value on which the apartment is built.

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